EXERCISE PHYSIOLOGY (EXPH)

EXPH 50612  EXERCISE LEADERSHIP FOR THE OLDER ADULT  3 Credit Hours
(Cross-listed with EXSC 40612) Designed to provide the students with a knowledge base in exercise leadership in the senior population and includes special populations. Students participate in the leading supervision and evaluation of the participant within the exercise program. They also assist in the collection of functional fitness data.
Prerequisite: Graduate standing.
Schedule Type: Combined Lecture and Lab
Contact Hours: 2 lecture, 2 lab
Grade Mode: Standard Letter

EXPH 51000  EXERCISE IMPLEMENTATION: AN EXERCISE INTERVENTION PROGRAM  1-3 Credit Hours
(Repeatable for credit) Students will participate in leading, supervising and developing plans for individuals who want to reduce cardiovascular risk factors through structured exercise.
Prerequisite: EXPH 55080 and Graduate standing.
Schedule Type: Laboratory
Contact Hours: 3-9 lab
Grade Mode: Standard Letter

EXPH 53093  VARIABLE TITLE WORKSHOP IN EXERCISE SCIENCE AND EXERCISE PHYSIOLOGY  1-3 Credit Hours
(Repeatable for credit) (Cross-listed with EXSC 43093) Workshop in exercise science or physiology, topics vary.
Prerequisite: Graduate standing.
Schedule Type: Workshop
Contact Hours: 1-3 other
Grade Mode: Satisfactory/Unsatisfactory

EXPH 55040  ADVANCED STRENGTH AND CONDITIONING  3 Credit Hours
(Slashed with EXSC 45040) Advanced principles in strength and conditioning. Learn and understand the energy systems, anatomy, physiology and proper lifting technique of strength, speed, agility and conditioning exercises for practical application with athletes.
Prerequisite: Graduate standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

EXPH 55065  EXERCISE TESTING  3 Credit Hours
(Cross-listed with EXSC 45065) Lecture and laboratory experiences dealing with the administration and interpretation of exercise tests.
Prerequisite: Graduate standing.
Schedule Type: Combined Lecture and Lab
Contact Hours: 2 lecture, 2 lab
Grade Mode: Standard Letter

EXPH 55070  ELECTROCARDIOGRAPHY FOR THE EXERCISE PHYSIOLOGIST  3 Credit Hours
(Cross-listed with EXSC 45070) Designed to provide students with the knowledge base in electrocardiography. Students work on interpreting the 12-lead electrocardiogram with clinical case studies to enhance the knowledge base of the exercise specialist.
Prerequisite: Graduate standing and special approval.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

EXPH 55080  PHYSIOLOGY OF EXERCISE  3 Credit Hours
(Cross-listed with EXSC 45080) Physiological bases of muscular activity with special attention to general effects of exercise on body function. Laboratory included.
Prerequisite: Graduate standing.
Schedule Type: Combined Lecture and Lab
Contact Hours: 2 lecture, 2 lab
Grade Mode: Standard Letter

EXPH 60610  PHYSIOLOGY OF AGING: IMPLICATIONS FOR HUMAN BEHAVIOR  3 Credit Hours
(Cross-listed with EXPH 76010) Examine physiological changes which accompany advancing age. Special attention is paid to the effect of these changes on sensory motor and cognitive behavior.
Prerequisite: Graduate standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

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

EXPH 63051  QUANTITATIVE AND RESEARCH METHODS IN ATHLETIC TRAINING AND EXERCISE PHYSIOLOGY  3 Credit Hours
(Cross-listed with EXPH 73051) Research design and statistical methods applied to exercise, physiology and athletic training.
Prerequisite: EXPH 63050 and Graduate standing.
Schedule Type: Combined Lecture and Lab
Contact Hours: 2 lecture, 2 lab
Grade Mode: Standard Letter

EXPH 63052  ADVANCED RESEARCH DESIGN AND STATISTICS IN EXERCISE PHYSIOLOGY  3 Credit Hours
(Cross-listed with EXPH 73052) Advanced topics in research design and statistical analysis with computer applications in exercise physiology.
Prerequisite: EXPH 63051 and Graduate standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

EXPH 63095  RESEARCH SEMINAR  1 Credit Hour
(Repeatable for credit) (Cross-listed with ATTR 63095 and ATTR 73095 and EXPH 73095 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: Graduate standing.
Schedule Type: Seminar
Contact Hours: 1 other
Grade Mode: Satisfactory/Unsatisfactory
EXPH 63096  INDIVIDUAL INVESTIGATION IN EXERCISE PHYSIOLOGY  
1-3 Credit Hours  
(Repeatable for a maximum of 6 credit hours) (Cross-listed with EXPH 73096) Independent study completed under the supervision of a faculty member. Written approval of supervising faculty member and School Director required prior to registration. 
Prerequisite: Graduate standing and special approval. 
Schedule Type: Individual Investigation 
Contact Hours: 3-9 other 
Grade Mode: Standard Letter-IP 

EXPH 63098  RESEARCH  
1-15 Credit Hours  
(Repeatable for credit) (Cross-listed with ATTR 63098 and SRM 63098) Research or individual investigation. 
Prerequisite: Graduate standing. 
Schedule Type: Research 
Contact Hours: 1-15 other 
Grade Mode: Standard Letter-S/U-IP 

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  
(Cross-listed with ATTR 63199 and SRM 63199) 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  
(Cross-listed with ATTR 63299 and SRM 63299) 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: 3 lecture 
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. P
**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 ADVANCED RESEARCH DESIGN AND STATISTICS IN EXERCISE PHYSIOLOGY 3 Credit Hours
(Cross-listed with EXPH 63052) Advanced topics in research design and statistical analysis with computer applications in exercise physiology.
**Prerequisite:** EXPH 63051 or EXPH 73051 and Doctoral standing.
**Schedule Type:** Lecture
**Contact Hours:** 3 lecture
**Grade Mode:** Standard Letter

### 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 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) 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-S/U-IP

EXPH 83199 DISSERTATION I 15 Credit Hours
(Repeatable for credit) Doctoral dissertation, for which registration in at least two semesters is required, first of which will be semester in which dissertation work is begun and continuing until the completion of 30 hours.
Prerequisite: Doctoral standing and special approval.
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