

EXERCISE & SPORT SCIENCES-GRAD (ESSG)

ESSG 51200 Theoretical Perspectives of Mental Performance in Sport and Exercise (NLA)

Explains theories, skills, and techniques that impact the description, understanding, and enhancement of mental performance in sport and exercise. Utilizes lecture and cooperative learning strategies to better understand the theoretical perspectives and strategies that influence the mental performances of individual and team sport athletes and coaches. (F,Y)

3 Credits

ESSG 51300 Applications of Mental Performance in Sport and Exercise (NLA)

Design, create, and deliver educational workshops and performance enhancement programs implementing multiple techniques and strategies. Differentiate and explain specific mental performance perspectives. Apply (in a small group setting) practical skills and strategies for enhancing sport and exercise performances in a cooperative learning and workshop environment. (S,Y)

3 Credits

ESSG 51400 Concepts and Theory of Supportive Relationships in Sport (NLA)

Achieve awareness of diverse student-athletes experiences within sport settings. Contrast student-athlete development models and theories related to effective helping from a coaching perspective. Demonstrate helping concepts such as rapport building, basic listening and communication skills. (F,Y)

3 Credits

ESSG 51500 Effective Team Building

Focuses on an understanding of people and the interpersonal communication and leadership skills necessary for effective and cohesive team development. Stages of group development, barriers to change, and conflict resolution are discussed. (SU)

1 Credit

ESSG 51600 Motivation for Superior Performance

Focuses on an understanding of motivation and its importance to performance. Various motivational approaches are discussed, with emphasis on influencing others toward goal adherence and attainment. (SU)

2 Credits

ESSG 51800 Exercise and Rehabilitation Psychology (NLA)

Focuses on personal factors and theoretical perspectives important to understanding exercise behavior. Topics include the mental health aspects of exercise, the biopsychology of stress and disease, the factors that influence exercise participation and adherence, theories of behavior change, interventions to change physical activity behavior, and the psychological factors related to perceived exertion. Students may not get credit for both ESSG 51800 and EXSS 46500. Graduate students have additional workload and responsibilities. (F, Y)

3 Credits

ESSG 52000 Human Movement Biomechanics of Sport and Exercise (NLA)

Explore kinematic, kinetic, and musculoskeletal concepts at the core of human movement biomechanics. Examine biomechanics of select human movement skills focusing on current topics in running, lifting, jumping, landing and throwing. Experiment with laboratory based equipment to perform and interpret biomechanical analyses of human movements using anthropometry, motion analysis / video, force plates, and electromyography. Apply evidence based decision making to solve case studies and examples. This course requires the skills, knowledge, and experience gained in undergraduate biomechanics. (F,Y)

3 Credits

ESSG 52100 Advanced Study in Exercise Physiology (NLA)

The physiological mechanisms that regulate the body's responses and adaptations to exercise. Special physiological considerations of gender, development and aging, obesity, pregnancy, and environmental stress (e.g., altitude, pollution, extreme temperature) are emphasized. Popular pharmaceutical and dietary manipulations used to enhance exercise performance are discussed. Experimental research in exercise physiology is introduced, and limited laboratory experiences are scheduled during class time. Students may not get credit for both ESSG 52100 and EXSS 42100. Graduate students have additional workload and responsibilities. Prerequisites: One course in exercise physiology. (S,F,Y)

3 Credits

ESSG 53500 Special Populations and Exercise (NLA)

Examines the physiological mechanisms that may be altered in clinical populations, and the impact of these alterations on exercise. An emphasis will be placed on understanding the etiology behind populations who have special considerations, such as people with chronic diseases, pregnant women, and people with physical and mental disabilities, as well as the implications for exercise training. Exploration of these clinical populations will occur through lecture and laboratory activities. Basic physiology and the typical response to exercise is reviewed. This course requires the skills, knowledge, and experience gained in an undergraduate exercise physiology course (or equivalent). (S,Y)

3 Credits

ESSG 53800 Strength and Conditioning: Current Concepts and Applications (NLA)

Examine theoretical underpinnings of recent developments in areas of performance testing and athlete monitoring including technological advancements. Evaluate athlete's slow- and fast-moving strength characteristics using various technologies using objective measures. Create sophisticated program designs incorporating basic and advanced periodization models. Prerequisites: ESSG 52000 and ESSG 54000. (S,Y)

3 Credits

ESSG 54000 Physiological Mechanisms of Exercise (NLA)

Explore the metabolic, muscular, cardiovascular, and pulmonary responses and adaptations to exercise in various environmental conditions and how they are coordinated intrinsically and extrinsically by the body. Measure maximum aerobic and anaerobic power, and body composition. Check the reliability and validity of the measures with basic statistical analyses, including co-efficients of variation, correlations, and inferential statistics. Link various lab measures to lecture topics such as substrate selection and the cardiovascular and pulmonary responses to exercise. This course requires the skills, knowledge, and experience gained in undergraduate exercise physiology course. (F,Y)

3 Credits

ESSG 54200 Physiological Mechanisms of Exercise: Systemic Aspects

Focuses on cardiovascular, pulmonary, thermoregulatory, immunological, and renal aspects of exercise, primarily addressing the physiological responses and adaptations these systems undergo with exercise. Data collection using key pieces of laboratory equipment is integrated into the course. Prerequisites: Undergraduate exercise physiology course. (S, Y) 3 Credits

ESSG 54300 Tests and Measurement and Analytics in Sport and Exercise (NLA)

Perform and explore assessments of physical performance and function including tests and measurements of aerobic capacity, anaerobic power, fatigue, speed / agility, body composition and anthropometry, posture and balance, and physical activity. Evaluate reliability and validity of field / clinical assessments compared to gold standard laboratory based assessments. Analyze, manage, and interpret data to incorporate evidence based decision making in prescribing interventions. Prerequisites: ESSG 52000 and ESSG 54000. (S,Y) 3 Credits

ESSG 54400 Multidimensional Assessment of Physical Function

Team-taught survey of the physical functions that affect performance, physical abilities, and activities of daily living (ADL) in various populations. Musculoskeletal function, coordination and motor skills behavior, and body composition are examined as they influence performance decrements, physical dysfunction, pain, and the ability to perform ADLs. Also examined are evaluations of physical function and alternative approaches to movement training so as to enable appropriate recommendation or referral. Prerequisites: Undergraduate exercise physiology and biomechanics or kinesiology. (F, Y) 3 Credits

ESSG 54500 3D Motion Capture for Human Movement Analysis and Evaluation (NLA)

Utilize 3D Motion Capture system to analyze and evaluate human movement for purposes of improving performance or function. Explore reliability, validity, and limitations to technology as an aid to movement assessment for practitioners and scientists. Perform analyzes, evaluate data, and communicate outcomes in written and oral formats. Prerequisites: ESSG 52000. (IRR) 3 Credits

ESSG 54600 Cardiopulmonary Assessment for Exercise

Techniques for assessment of cardiovascular and pulmonary disease as well as functional capacity in these conditions. Emphasis is placed on electrocardiography and maximal grades exercise testing. Other diagnostic techniques (e.g., echocardiography, nuclear imaging) are also presented. Discussion of the impact of assessment information and medications on appropriate exercise prescriptions. Material will help in meeting requirements for certification by outside agencies (e.g., ACSM). Credit may not be received for both this course and EXSS 46400. Graduate students have additional workload and responsibilities. (F,Y) 3 Credits

ESSG 54800 Pathophysiology, Limited Capacity, and Exercise

Study of the pathophysiology of disease and disabling states, the assessment of exercise potential, and the special considerations for the prescription of exercise in these cases. Cardiac and pulmonary rehabilitation and diabetic and special considerations for aging are discussed. Renal disease, osteoporosis, arthritis, brain disorders (e.g., Parkinson's), low back pain, chronic fatigue, multiple sclerosis, and depression are also addressed. Material will help in meeting requirements for certification by outside agencies (e.g., ACSM). Credit may not be received for both this course and EXSS 44800. Graduate students have additional workload and responsibilities. (S, Y) 3 Credits

ESSG 60100 Evidence Based Sport and Exercise Psychology (NLA)

Prepares students for evidence based practice in sport and exercise psychology. The evaluative approach to appraising the research literature will prepare the students to judge evidence on: 1) accuracy and validity of measures for the evaluation of change; 2) monitoring effectiveness of sport psychology interventions; 3) reporting of effectiveness and evaluation of practice in performance planning. Based on case scenarios, students will be required to formulate the key question(s), rapidly search literature databases, perform a critical appraisal of the evidence, and describe application of the evidence in a sport and exercise psychology context to develop the skills necessary to implement evidence-based practice in their careers. Prerequisites: ESSG 51200; ESSG 51300. (U,Y) 3 Credits

ESSG 60200 Diversity in Sport and Exercise (NLA)

Develop the foundation and skills needed for engagement as competent and culturally alert persons entering sport and exercise related professions. Explore issues and trends related to culture, such as ethnicity, race, nationality, gender, sexual orientation abilities/disabilities, immigrant dynamics, and socioeconomic factors which influence working relationships and sport and exercise performances. Engage in self-exploration around your own cultural/race identity and your responses to issues of diversity including bias, oppression, discrimination and the role of privilege. Prerequisites: ESSG 51400. (U,Y) 3 Credits

ESSG 60500 The Development of Expertise in Sport and Exercise (NLA)

Explore the neuropsychology of the development of expertise in sports and motor skills. Explain factors influencing adaptations in central and peripheral neurophysiology, including mindset, training principles, and practice conditions. Contrast approaches to short- and long-term development for healthy and injured athletes from the perspective of athlete and coach. Prerequisites: Two ESSG 500-level courses. (F,Y) 3 Credits

ESSG 61000 Research and Statistics in Exercise and Sport Sciences I (NLA)

Engage in empirical thinking and inquiry in health, exercise and sport sciences. Expand existing knowledge in quantitative literacy and research methodology for graduate education. Develop advanced skills for understanding, conducting, evaluating, using, and communicating research and evidence-based decision making in exercise and sport sciences. (F,Y) 3 Credits

ESSG 61100 Research and Statistics in Exercise and Sport Sciences II (NLA)

Critique advanced research designs in exercise science and conduct advanced statistical analyses. Examine relationships between research questions, research designs and statistical techniques. Design an independent research project covering all stages of the research process (e.g., literature searches, finding a research questions, choosing a research design, data collection and interpretation, identifying limitations, and academic dissemination). This course prepares the student for thesis 1 and independent research. (S,Y)
3 Credits

ESSG 61200 Leadership in Exercise and Sport (NLA)

Examines the importance of developing effective individual, team, and corporate sport leadership. Emphasis is placed on assessing and enhancing leadership qualities, developing strategies for building influential and effective leadership personnel, mentoring (identifying, nurturing, and equipping) leaders, and understanding situational, transformational, charismatic, and servant leadership. Material is presented via small group, seminar, lecture, and student-taught workshop and student-based (cooperative learning) discussion formats. (F,Y)
3 Credits

ESSG 61400 Ethics & Professional Issues in Mental Performance and Coaching (NLA)

Identify and describe ethical concerns and professional issues in mental performance and coaching. Contrast different professional roles in mental performance and coaching. Evaluate competency and training/accreditation standards with specific emphasis on certification requirements (e.g. CMPC, CSCS). Appraise ethics code guidelines of professional organizations (e.g. AASP, SHAPE, ACSM) relevant to sport and exercise settings. Defend ethical responsibilities associated with testing, measurement, and research/evaluation practices. (S,Y)
3 Credits

ESSG 61600 Advanced Communication and Facilitation Skills in Sport and Exercise (NLA)

Appraise advanced communication and facilitation skills for use in sport and exercise settings. Analyze theory and research evidence behind effective communication and facilitative skills. Demonstrate advanced communication and facilitative skills through various structured course discussions of case studies and exercises. Prerequisite: ESSG 51400. (U,Y)
3 Credits

ESSG 61800 Theories and Issues in Performance Enhancement in Sport and Exercise (NLA)

Compare and contrast theories and research related to enhancing mental performance in sport and exercise. Develop programs grounded in theory and based on evidence for mental performance programming and defend programming plans. Observe and critique mental performance training and programming sessions in sport, exercise and performance-based settings. Prerequisites: ESSG 51200; ESSG 51400; ESSG 51300; ESSG 61400. (F,Y)
3 Credits

ESSG 61900 Mental Performance Practicum (NLA)

Provides and expands on the consulting experience of delivering mental training services in sport and exercise settings started in Theories and Practice of Performance Enhancement in Sport and Exercise. Emphasizes application of advanced theories and the practice of behavior change in sport and exercise, while simultaneously engaged in CMPC mentored independent work in real life sport, exercise and performance based settings. Provides mentored/supervised experiences for individual and group (team) interventions. May be repeated for a total of no more than six credits. Prerequisites: ESSG 61800. (F,S)
1-6 Credits

ESSG 62000 Thesis I

Open only to qualified and preapproved students who are preparing a proposal for an original scholarly thesis. Conducted on a conference basis with the thesis adviser, the course culminates in a thesis proposal. The thesis proposal must gain approval of the thesis adviser, thesis committee, and the graduate chair. Guidelines are available from the office of the graduate chair. The completed thesis must gain departmental and graduate office approval. Required for thesis plan.
3 Credits

ESSG 62100 Thesis II

Open only to qualified and preapproved students who are continuing to work on a scholarly thesis. Conducted on a conference basis with the thesis adviser. Guidelines are available from the office of the graduate chair. The completed thesis must gain approval of the thesis adviser, graduate chair, and the graduate dean. Pass/fail only. Required for thesis plan. Prerequisites: ESSG 62000 and approval of thesis adviser and graduate chair. This includes one to three credits repeated for a required total of three credits of ESSG 62100.
1-3 Credits

ESSG 62500 Applied Capstone in Exercise and Sport Science (NLA)

Integrate the Exercise Science (ES) support process into practice through the application of knowledge, skills and abilities developed throughout the Human Performance concentration completing a case study. Conduct a comprehensive needs analysis on a real-world client / athlete. Prepare and present an evidence-based training plan grounded in theory and addressing holistic needs and values of clients. Defend decisions and showcase your skills as safe, effective and ethical practitioners. Prerequisites: ESSG 53800. (Y)
3 Credits

ESSG 63000 Independent Research

Student works in close cooperation with a graduate faculty member in a self-directed study, problem solving, or research investigation. Topic, proposal, and a design statement must be approved in advance by the sponsoring professor and graduate chair. This includes one to three credits per course that may be repeated for a total of no more than six credits of independent study courses (ESSG 63000 and ESSG 63100). (W,SU)
1-3 Credits

ESSG 63100 Independent Reading

Reading in the field, arranged between the student and a sponsoring graduate faculty member. Topic, proposal, and a design statement must be approved in advance by the sponsoring professor and graduate chair. This includes one to three credits per course that may be repeated for a total of no more than six credits of independent study courses (ESSG 63000 and ESSG 63100). (W,SU)
1-3 Credits

ESSG 63200-63201 Group Research (NLA)

Group participation in a research project. Small groups of students, under the direction of a faculty adviser, engage in the research process, from literature review, proposal development, submission of human subjects' review documents, data collection, data analysis, and presentation of the data. (IRR)

1-3 Credits

ESSG 64000 Seminar

In-depth seminar on particular topics associated with academic concentrations offered in exercise and sport sciences. Students explore and critically examine current readings, philosophies, theories, and/or practices associated with a given topic and discuss potential applications of these concepts to actual or simulated situations. Students may present research findings, thesis proposals, or thesis defenses. Students must pass two semesters of this zero-credit seminar. Pass/fail only. (F, S)

0 Credit

ESSG 64500 Psychophysiology of Exercise and Sport (NLA)

Examines the interaction between psychological states and physiological function, particularly within the realm of exercise and sport. Specific topics include neurohormonal and physiological correlates of disordered eating behaviors, body image, perceived exertion, aggression, stress responses, overtraining, and other behaviors. The way exercise works as a mind-body medicine modality, including mental health and maintenance of cognitive function, is examined. Cognitive states, including arousal and intentionality, are examined as they influence physiological adaptations made during training. (W)

3 Credits

ESSG 64800 Strength and Conditioning: Theories, Mechanisms, and Applications (NLA)

Evidence-based presentation and discussion of methods practiced for improvement of strength and conditioning. Enhancement of athletic performance through new or accepted strength and conditioning techniques will be emphasized, though rehabilitative issues may also be addressed. Prerequisite: One course in exercise physiology. (Sum)

3 Credits

ESSG 66000 Internship

Supervised work experience in an agency related to the student's concentration in the master's degree program. Approval and support of a graduate faculty sponsor and the graduate chair are required, and prerequisite coursework may be needed. One to three credits, for a total of three credits. May be repeated for a total of no more than six credits. (F, S, SU)

1-3 Credits

ESSG 69900 Selected Seminars

Advanced courses on particular topics associated with academic concentrations offered in the exercise and sport sciences programs. Courses are offered at irregular intervals on topics chosen by faculty members or resulting from student requests. Course may be repeated for credit for selected topics on different subjects. Prerequisite: Permission of instructor. (IRR)

1-3 Credits

ESSG 74200 Advanced Techniques of Athletic Training

Consideration of the prevention, management, and rehabilitation of sports injuries. Essential concepts include anatomical basis of common injuries, injury assessment, and principles of therapeutic exercise for areas often injured. Laboratory time is included. Prerequisite: EXSS 24700 or equivalent, or permission of instructor. (SU)

3 Credits