Applied Exercise Science Major

Applied Exercise Science Major Overview

Please note: This bulletin contains the revised AES Program, which is to be followed by students that matriculated in Fall 2023 or later (first-year, cross-campus, and external transfer students). If you matriculated prior to Fall 2023 and would like more information about the two-tracks, please visit a prior bulletin. Any student can elect to move up to the new curriculum but will be held to the new requirements. A student cannot elect to move back bulletin years.

Overview

The Applied Exercise Science (AES) program provides a science-based curriculum, focusing on physical activity across the lifespan. Our program prepares students for careers and advanced learning in health promotion, while addressing the health and wellness needs for people of all ages and abilities. The Applied Exercise Science major offers students the knowledge and skills required for successfully entering the growing field of Applied Exercise Science. Physical activity/inactivity and obesity have become a national focus. The School of Kinesiology has adapted to better accommodate this trend in physical awareness by providing knowledge of activity across the lifespan. Students majoring in Applied Exercise Science learn how to communicate to members of the public of varying ages, abilities, and backgrounds, behaviors that can prevent diseases, injuries, and other health problems by encouraging healthy lifestyles and wellness. The Applied Exercise Science curriculum includes courses required for American College of Sports Medicine (ACSM) Certifications as well as business and legal courses necessary for those wishing to establish new businesses or work in corporate settings.

Students who complete the Applied Exercise Science program will receive a Bachelor of Science (B.S.) degree. Students should consult the Applied Exercise Science Program Chair and Advisor within Kinesiology for further information about Applied Exercise Science Program requirements, admissions procedures, and application deadlines.

The Kinesiology Office of Undergraduate Student Affairs and the Applied Exercise Science Program Chair are the two main sources of information and support for Applied Exercise Science students.

Prerequisites for Core Coursework in Applied Exercise Science

- Complete MATH 105 with a grade of C or higher (MATH 115 with a C- or higher will also be accepted)
    - Incoming AES freshmen must complete MATH 105 at the University of Michigan; the course cannot be transferred. AP credit for MATH 120 will be accepted. Students who receive the Calculus Definite Math Placement recommendation are not required to take MATH 105.
- Complete AES/AT 220 & 221 with a grade of C or higher ·

- PHYSIOL 201 with a grade of C or higher will also be accepted.

Requirements in Applied Exercise Science

- FYWR - (4 cr.) Must achieve a C or better.
- MATH 105 - Data, Functions, and Graphs (4 cr.) (NS) with a C or better OR Math 115 with a C- or higher OR Calculus Definite Math Placement
- PSYCH 111 or 112 - Introduction to Psychology (4 cr.) (SS or NS)
- MOVESCI 250 or STATS 250 or STATS 280 or SOC 210 - Introduction to Statistics (3 or 4 cr.)
- AES 100 – Introduction to Applied Exercise Science (2 cr.)
- AES 218 – Emergency Response (3 cr.) Cannot be transferred.
- AES 220 (3 cr.) and AES 221 (1 cr.) - Applied Human Physiology Lecture and Lab OR PHYSIOL 201 (4 cr.) (NS) –Must earn a C or better. AES 220 & 221 must be taken concurrently.
- MOVESCI 110/AES 110 - Biological and Behavioral Bases of Human Movement (3 cr.)

  AES 110 (effective WN 2025)
- SM 101 - Public and Small Group Communication (3 cr.) (HU)
- AES 290 – Field Experience in Applied Exercise Science (2 cr.)
- SM 217 – Business Communications (3 cr.) (HU) or MVS 219 or Scientific Writing (3 cr.) (HU)
- MOVESCI 230 & MOVESCI 231– Human Musculoskeletal Anatomy Lecture (3 cr.) and Lab (1 cr.) OR Anatomy 403 (5 cr.)
- AES 242 – Essentials of Exercise Physiology (4 cr.) (Prereqs: AT/AES 220, 221; C or better) & AES 243 (Lab)
- AES 315 – Exercise Prescription & Testing (3 cr.) Cannot be transferred. (Prereq: AES 218, AES 242 is recommended)
- AES 331 & AES 330 (Lab) – Biomechanics of Sport & Exercise (4 cr.) (Prereqs: (MATH 105 and AT/AES 220, 221 [C or better] SM217/MVS219 is recommended)
- AES 332 – Principles of Motor Behavior (3 cr.) (Prereqs: AT/AES 220, 221; C or better)
- AES 334 – Exercise Psychology (3 cr.) (SS)
- AES 403 - Internship (3 cr.) (Prereqs: Permission, AES 218, SM 217, AES 315, Junior standing, 2.5 GPA or permission from the Program Chair)

- TWO of the following courses:

    - MOVESCI/AES 451 – – Physical Activity Across the Lifespan (3 cr.) (Prereqs: MOVESCI 340 or AES 242 and MOVESCI 219 or SM 217)
    - AES 460: Description and Evaluation of Physical Activity Interventions
    - MOVESCI/AES 446 - Social Factors in PA Behavior (3 cr.) (Prereqs: MOVESCI 219 or SM 217 and MOVESCI 340 or PHYSED/AES 242)
    - AES 416 – Environmental and Policy Approaches to Increasing Physical Activity (Prereq: Senior standing)

Applied Exercise Science Elective Requirements

Students are required to take 15 credits of AES electives. AES Major electives offer a valuable opportunity for students to customize their education, deepen their knowledge in specific areas, develop relevant skills, and prepare for future careers or further education. You are encouraged to speak to a faculty member or your academic advisor when selecting electives to fit with your future career aspirations. To view a list of AES electives, please visit Fall 2023 and Later AES Electives..

NOTE: A course cannot be used as an elective if it was used towards core major requirements.

Distribution Requirements

Students must complete the Distribution Requirement of a minimum of 12 credits in Natural Science, Humanities, and Social Science. To see which required courses count toward distribution, students should refer to the AES Record Sheet on the Forms & Bulletins page (https://www.kines.umich.edu/student-services/forms-bulletins) of the Kinesiology website. For general distribution information, see the LSA course guide.

Internship Requirements Students must complete two approved field experiences/internships in the field of Applied Exercise Science to earn their degree.

AES 290 credits are designed for lower classmen. Students may complete a shadowing experience or internship for 1-2 credits. AES 290 Field Experience Guidelines can be found on the Forms & Bulletins page (https://www.kines.umich.edu/student-services/forms-bulletins) of the Kinesiology website. Students may repeat the internship for credit if content and summary of work differs. Internships can be either paid or unpaid. Students must complete 2 credits of AES 290 to fulfill the degree requirement.

To be eligible for the AES 403 internship you must have junior standing, have a cumulative GPA of 2.5 or higher, completed AES 315 Exercise Prescription, AES 218, and SM 217 or MVS 219. Students may complete an internship for 1-3 credits. AES 403 Internship Guidelines can be found on the Forms & Bulletins page (https://www.kines.umich.edu/student-services/forms-bulletins) of the Kinesiology website. Students may

repeat the internship for credit if content and summary of work differs. Internships can be either paid or unpaid. Students must complete 3 credits of AES 403 to fulfill the degree requirement.

Study Abroad Credit

Study abroad credit from Kinesiology-sponsored and non-Kinesiology-sponsored study abroad programs can be used as general elective credit toward graduation and to fulfill Distribution requirements. With prior approval by the AES Faculty Committee, students can use study abroad credit to fulfill certain AES requirements. For additional information, please see our Global Engagement Team.

Cross Campus Transfer Requirements

The School of Kinesiology accepts applications for Fall and Winter terms only. Students can apply for their sophomore year or junior year only. Admission is selective and pending space available. Please note that transferring into Kinesiology may require additional time to complete your degree. This depends on the progress you have made toward the AES degree and additional courses you elect to take outside of the AES curriculum.

Deadlines: October 1 for Winter Semester

February 1 for Fall Semester

In progress courses at the time of application will be considered towards admission.

Sophomore – Cumulative GPA of 3.0 and completion of the following:

- Math 105 with a “C” or better
  - Math 115 with a “C-” or better will also fulfill requirement
  - AP/IB Calculus will fulfill requirement
  - Students who placed into “Calculus Definite” on the Math Placement Exam are exempt from the requirement
- First Year Writing Requirement with a “C” or better
- MOVESCI 110
- AES 220/221 with a “C” or better (Winter only course)
  - PHYSIOL 201 with a “C” or better will also fulfill requirement

Junior – Cumulative GPA of 3.0 and completion of the following:

- MATH 105 with a "C" or better
  - Math 115 with a "C-" or better will also fulfill requirement
  - AP/IB Calculus will fulfill requirement
  - Students who placed into "Calculus Definite" on the Math Placement Exam are exempt from the requirement
- First Year Writing Requirement with a "C" or better
- PSYCH 111 or 112
- MOVESCI 110
- MOVESCI 230/231 or ANATOMY 403
- AES 220/221 with a "C" or better (Winter only course)
  - PHYSIOL 201 with a "C" or better also fulfills this requirement.
- One of Stats 250/Stats 280/Soc 210/MOVESCI 250
- AES 242

Seniors need to petition AES faculty to begin the program. Petitions will be considered on a case by case basis.

Movement Science Major

The Movement Science (MOVESCI) major strives to fully develop the intellectual abilities of each student during their learning experiences in the School of Kinesiology. The program emphasizes the study of human movement from biological and behavioral perspectives across the lifespan. The Movement Science Department achieves their mission by offering a diversified program that includes introductory and advanced course work, research, and laboratory experiences. Success is evaluated by the academic and professional placement of graduates.

Overview

The Movement Science major comprises coursework that emphasizes the causes and consequences of human movement from biomechanical, motor control, and development and physiological perspectives. The requirements include courses both in and outside of Kinesiology.

The Movement Science curriculum emphasizes competencies in four areas:

1. Three areas of Movement Science: Biomechanics, Motor Control, and Exercise Physiology