

# APPLIED HEALTH SCIENCES

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The Applied Health Sciences (<https://www.bethel.edu/undergrad/academics/human-kinetics/>) programs endorse a philosophy that the key to health and wellness is the quality of one's lifestyle, which has physical, mental, emotional, social, and spiritual aspects. The department's mission is to embolden and equip faith-based, future applied scientists to expand the limits of known knowledge for the inspiration of innovations, service and leadership within dynamic healthcare settings. The Applied Health Sciences faculty do this by fostering interdisciplinary and collaborative relationships, inspiring application through real-world scenarios, and mentoring systematic investigation.

## Majors in Applied Health Sciences

- B.S. in Exercise Science (<https://catalog.bethel.edu/arts-sciences/academic-programs-departments/human-kinetics-applied-health-science/exercise-science-bs/>)
- B.S. in Human Bioenergetics (<https://catalog.bethel.edu/arts-sciences/academic-programs-departments/human-kinetics-applied-health-science/human-bioenergetics-bs/>)
- B.S. in Rehabilitation and Movement Science (<https://catalog.bethel.edu/arts-sciences/academic-programs-departments/human-kinetics-applied-health-science/rehabilitation-and-movement-science-bs/>)

### **AHS 001 • First Aid and CPR Certification 0 Credit**

Successful completion of the American Red Cross First Aid course and proof of CPR certification.

### **AHS 100 • Foundations in Applied Health Science 1 Credit**

A starting point for "life after Bethel" discussions and assignments throughout the academic career in applied health sciences majors. Explores the knowledge, skills, and competencies for career pathways in medical and applied/allied health science fields. Students discover, practice, and reflect on the building blocks for success in health-related career pathways.

*Offered: Fall, Occasionally spring.*

### **AHS 170 • Applied Nutrition 2 Credits**

Effects of individualized nutrition on health, human performance, and chronic disease prevention will be discussed throughout the lifespan. Topics covered also include macronutrient sources, digestion, absorption and basic utilization with introductory concepts of micronutrient classifications and physiological roles.

*Offered: Fall, Occasionally January, Spring.*

### **AHS 248 • Applied Movement Systems 2 Credits**

A hands-on, applied course that exposes and prepares students to understand the function and application of movement systems and exercise to enhance the function and capacity of the musculoskeletal and cardiovascular systems.

*Offered: Fall, Spring.*

### **AHS 250M • Statistics and Research Methods in Applied Health Sciences 4 Credits**

Descriptive statistics. Discrete probability spaces, random variables, and distributions. Normal distribution, statistical inference, estimation, hypothesis testing, linear regression, correlation analysis, and analysis of variance. Applications to healthcare and Institutional Review Board (IRB) human-based research projects.

*Offered: Fall, Spring. Special Notes: Students may not receive credit for AHS 250M and BUS 201M, PSY 230M, or MAT 207M. AHS 250M does not count toward the psychological sciences minor elective credit requirement.*

**AHS 303KZ • Integrative Medicine in a Cross-Cultural Setting 4 Credits**

Theories and practices of integrative medicine that promote quality health and wellness. Models from ancient Mayan practices to modern Western medical practices. Scientific theories include ethnobotany, psychoneuroimmunology, integrative nutrition, and biofeedback. Practices may include therapeutic touch, yoga, mindfulness, contemplative prayer, nature therapy, and healing effects of physical activity and movement.

*Prerequisites:* GES 104; Laboratory Science (D) course; Mathematics (M) course. *Offered:* Occasionally January.

**AHS 370 • Functional Human Nutrition 4 Credits**

Prepares students in functional nutrition, emphasizing human biochemistry and cellular energetics. Explores the relationship of nutrients to health pathologies, including metabolic syndrome, obesity, diabetes, cardiovascular disease, and cancer. Practical experience with nutritional interventions for health optimization and disease management. Emphasis on biochemical individuality for positive, nutritional modulation in oxidative phosphorylation.

*Prerequisites:* BIO 120/BIO 120D, BIO 122/BIO 122D, BIO 124/BIO 124D, or BIO 128/BIO 128D and CHE 113/CHE 113D and AHS 170. *Offered:* Fall, Spring.

**AHS 375 • Functional Anatomy 4 Credits**

Applied, anatomical content focuses on musculoskeletal kinematics, types of muscular contraction, location/direction of force application, and descriptive movement analysis. Topics integrate motor learning and development concepts including skills acquisition and maintenance of motor skills.

*Prerequisites:* BIO 214/BIO 215 or BIO 238/BIO 239 and Mathematics (M) course. *Offered:* Fall, Spring. *Special Notes:* PHY 102/PHY 102D is a recommended prerequisite.

**AHS 379 • Integrative Human Physiology 4 Credits**

Examination of how normal human physiological function (homeostasis) is altered, and subsequently restored, in response to various forms of acute and chronic stress.

*Prerequisites:* BIO 214/BIO 215 and BIO 216/BIO 217. *Offered:* Fall, Spring.

**AHS 393 • Literature Review in Applied Health Sciences 2 Credits**

Students develop and work on their research project and IRB. Students use literature to formulate an independent project. Completion of IRB is expected. Discussions of careers, graduate and medical school application and entrance examinations.

*Prerequisites:* AHS 001 and AHS 379 (may be taken concurrently) *Corequisites:* Concurrent registration in AHS 398 and AHS 399. *Offered:* Spring.

**AHS 398 • Physiological Assessment Laboratory 1 Credit**

Laboratory experience accompanying AHS 399.

*Prerequisites:* AHS 001 and AHS 379, (may be taken concurrently). *Corequisites:* Concurrent registration in AHS 393 and AHS 399 is required. *Offered:* Spring.

**AHS 399 • Physiological Assessment 3 Credits**

Applied techniques in the measurement of exercise bioenergetics, neuromuscular performance, cardiorespiratory fitness, and other health components. Particular emphasis is given to the knowledge necessary for exercise testing certifications and development of fitness testing skills.

*Prerequisites:* AHS 001 and AHS 379 (may be taken concurrently). *Corequisites:* Concurrent registration in AHS 393 and AHS 398 is required. *Offered:* Spring.

**AHS 440 • Advanced Training for Human Performance 3 Credits**

Prepares students to systematically design training and conditioning programs to enhance the function and capacity of the musculoskeletal and cardiovascular systems. Utilizes periodization and mathematical models with expected physiological and neuromuscular adaptations to maximize human performance in sport, pre-habilitation, public health, and special populations.

*Prerequisites:* BIO 216/BIO 217 and AHS 248 and AHS 375 (may be taken concurrently). *Offered:* Fall.

**AHS 445 • Advanced Laboratory Techniques in Applied Health Sciences 4 Credits**

Collection, interpretation, and prescription of human subjects data conducted. Activities focus on how to work in a dynamic laboratory and refine and master previously learned assessment skills.

*Prerequisites:* AHS 393; AHS 398; AHS 399. *Offered:* Fall, Spring.

**AHS 481 • Internship in Applied Health Sciences 1-4 Credits**

A practical experience in an off-campus setting in applying academic knowledge and professional skills under the dual supervision of a faculty member and a practicing professional. Experience is designed by the student in consultation with a faculty member.

*Prerequisites:* AHS 393; AHS 398; AHS 399 or Consent of instructor. *Special Notes:* Application must be made at least one semester prior to the intended experience. *Offered:* Fall, Spring.

**AHS 494 • Research in Applied Health Sciences 1 Credit**

Students develop and work on their senior research project. Students complete data collection and continue the discussion of "life after Bethel." In addition, social networking, public speaking, and presentations are explored.

*Prerequisites:* AHS 393; AHS 398; AHS 399. *Offered:* Fall.

**AHS 495 • Applied Health Sciences Symposium 2 Credits**

Students prepare and deliver formal presentation and manuscripts of their research results. Weekly discussions cover current research topics. The discussion of "life after Bethel" is continued.

*Prerequisites:* AHS 494. *Offered:* Spring.