

B.S. IN BIOKINETICS

Code	Title	Credits
Major in Biokinetics (B.S.)		
Applied Health Science Core		
HAS 120	First Aid	1
HAS 170	Applied Nutrition	3
HAS 247	Motor Development and Learning	3
HAS 250M	Statistics and Research Methods in Applied Health Sciences	3
HAS 370	Functional Human Nutrition	3
HAS 375	Biomechanics	3
HAS 379	Integrative Human Physiology	3
HAS 393	Literature Review in Biokinetics	1
HAS 398	Physiological Assessment Laboratory	1
HAS 399	Physiological Assessment	3
HAS 445	Advanced Laboratory Techniques in Biokinetics	3
HAS 450	Clinical Neuromuscular Interventions	3
HAS 481	Internship in Human Kinetics and Applied Health Science	3
HAS 494	Biokinetics Research	1
HAS 495	Biokinetics Symposium	1
Natural and Behavioral Science Core		
BIO 214 & BIO 215	Human Anatomy and Human Anatomy Lab ¹	4
BIO 216 & BIO 217	Human Physiology and Human Physiology Lab ²	4
CHE 113 & CHE 113D	General Chemistry I and General Chemistry I Lab	4
PSY 100	Introduction to Psychology	3
Code	Title	Credits
Major		50
General Education		42-43
Emphasis		10-12
Electives (4 credits must be at 300 level or above)		18-19
Total Credits		122

¹ BIO 104/BIO 104D, BIO 120/BIO 120D, BIO 122/BIO 122D, BIO 124/BIO 124D, or BIO 128/BIO 128D are prerequisites for this course.

² BIO 104/BIO 104D, BIO 120/BIO 120D, or BIO 218 are prerequisites for this course.

Courses whose number is followed by a letter fulfill a General Education requirement.

Students must earn a grade of C or better in each course in the major (HAS, BIO, CHE, PHY, PSY). Courses with grades of C- or lower must be repeated.

Exercise Science Emphasis (10 credits)

Code	Title	Credits
Applied Health Science Core		
HAS 130	Personal and Community Health	3
HAS 440	Advanced Training for Human Performance ¹	3
Natural and Behavioral Science Core		
Select one of the following sequences:		4
BIO 104 & BIO 104D	Human Biology and Human Biology Lab	
BIO 120 & BIO 120D	Introduction to Molecular and Cellular Biology and Introduction to Molecular and Cellular Biology Lab	
BIO 122 & BIO 122D	Introduction to Organismic Biology and Introduction to Organismic Biology Lab	
Total Credits		10

¹ BIO 238/BIO 239 is a prerequisite for this course.

Human Bioenergetics Emphasis (12 credits)

Code	Title	Credits
Natural and Behavioral Science Core		
CHE 214 & CHE 215	General Chemistry II and General Chemistry II Lab	4
Select one of the following sequences: ²		4
BIO 120 & BIO 120D	Introduction to Molecular and Cellular Biology and Introduction to Molecular and Cellular Biology Lab	
BIO 122 & BIO 122D	Introduction to Organismic Biology and Introduction to Organismic Biology Lab ¹	
Select one of the following sequences:		4
PHY 102 & PHY 102D	Physics of Everyday Life and Physics of Everyday Life-Lab ¹	
PHY 202 & PHY 202D	Introductory Physics I and Introductory Physics I Lab ^{1,3}	
Total Credits		12

¹ A student may also choose to use this course to meet a General Education requirement.

² Students interested in pre-physical therapy, pre-physician's assistant, pre-medicine, and/or other healthcare professional programs should complete the Human Bioenergetics emphasis and take BIO 122/BIO 122D and PHY 202/PHY 202D. They should also consult the health professions advisor at Bethel for additional courses that may be required dependent upon the graduate physical therapy program they choose.

³ MAT 123M, MAT 124M, or a solid understanding and competency in high school mathematics as demonstrated by at least one of the following: a Math ACT score of at least 23, 519 on the Math portion of the SAT, a Math Placement Test score of at least 3 are prerequisites for this course.

HAS 120 • First Aid 1 Credit

Emphasizes the citizen responder as the first link in the emergency medical services system through the American Red Cross First Aid course. Includes CPR/AED for the Professional Rescuer.

Offered: Fall, Spring.

HAS 130 • Personal and Community Health 3 Credits

Focus on health promotion and the development of skills to make informed lifestyle decisions. Examination of current information on major health issues including exercise, nutrition, stress, tobacco/alcohol/drug use, mental health, sexual health, environmental health, and disease. Emphasis on the importance of becoming an advocate for personal, family, and community health.

Offered: Fall, Spring.

HAS 170 • Applied Nutrition 3 Credits

Effects of nutrition on health, human performance and reduction of chronic disease throughout the lifespan. Topics covered also include disordered eating, weight management, supplements, and societal and cultural issues related to nutrition.

Offered: Fall, Interim, Spring.

HAS 205QA • Self-expression through Dance 2 Credits

A wide variety of rhythmic movement and dance that enhance creative expression, fitness development, and understanding of, and appreciation for, a variety of dance forms. Students think and move creatively and develop rhythmic skills through participation in aerobic dance, square dance, ethnic dance, and ballroom dance.

Offered: Occasionally.

HAS 247 • Motor Development and Learning 3 Credits

The mechanisms of human motor learning and development with special emphasis on the physical and psychological principles involved in the acquisition and maintenance of motor skills.

Prerequisites: BIO 214/BIO 215. Offered: Fall, Spring.

HAS 250M • Statistics and Research Methods in Applied Health Sciences 3 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 both HAS 250M and PSY 230M. HAS 250M will not count toward the psychology minor Elective credit requirement.

HAS 303KZ • Integrative Medicine in a Cross-Cultural Setting 3 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: Laboratory Science (D) course and Mathematics (M) course. Offered: Occasionally interim.

HAS 370 • Functional Human Nutrition 3 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 in biochemical individuality for positive, nutritional modulation in oxidative phosphorylation.

Prerequisites: BIO 120/BIO 120D or BIO 122/BIO 122D or CHE 113/CHE 113D; HAS 170. Offered: Fall, Spring.

HAS 375 • Biomechanics 3 Credits

Mechanics of sports performance and anatomical kinesiology. Newtonian mechanics, types of motion, application of force, maintenance of equilibrium, and fluid dynamics.

Prerequisites: BIO 214/BIO 215, BIO 238/BIO 239; Mathematics (M) course. Offered: Fall, Spring. Special Notes: PHY 102/PHY 102D and HAS 247 are recommended prerequisites.

HAS 379 • Integrative Human Physiology 3 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.

B.S. in Biokinetics 4

HAS 393 • Literature Review in Biokinetics 1 Credit

Students develop and work on their research project and IRB. Students will use literature to formulate an independent project. Completion of IRB is expected. Seminar includes discussions of careers, graduate and medical school application and entrance examines.

Corequisites: Concurrent registration in HAS 398 and HAS 399. Offered: Spring.

HAS 398 • Physiological Assessment Laboratory 1 Credit

Laboratory experience accompanying HAS 399.

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

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

HAS 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. This course 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 BIO 238/BIO 239 or Consent of instructor. Offered: Fall.

HAS 445 • Advanced Laboratory Techniques in Biokinetics 3 Credits

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

Prerequisites: HAS 399. Offered: Fall.

HAS 450 • Clinical Neuromuscular Interventions 3 Credits

Synthesizes content from various foundational classes, the skills of the assessment lab, and guidance from a practicing clinician to foster in-depth exploration of various topics. Reviews the anatomy and physiology of the nervous system and investigates neurologic atypical and/or pathological conditions. Independent and team learning, hands-on labs, and experiential observations.

Prerequisites: HAS 375 and HAS 399. Offered: Fall, Spring.

HAS 481 • Internship in Human Kinetics and Applied Health Science 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. Designed by student in consultation with a faculty member.

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

HAS 494 • Biokinetics Research 1 Credit

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

Prerequisites: HAS 393. Offered: Fall.

HAS 495 • Biokinetics Symposium 1 Credit

Students prepare and deliver formal presentation and manuscripts of their research results. Weekly discussions are organized on current research topics. This course will continue the discussion of "life after Bethel!"

Prerequisites: HAS 494. Offered: Spring.