## B.S. IN BIOKINETICS

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td></td>
<td><strong>Major in Biokinetics (B.S.)</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Applied Health Science Core</strong></td>
<td></td>
</tr>
<tr>
<td>HAS 120</td>
<td>First Aid</td>
<td>1</td>
</tr>
<tr>
<td>HAS 170</td>
<td>Applied Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>HAS 247</td>
<td>Motor Development and Learning</td>
<td>3</td>
</tr>
<tr>
<td>HAS 250M</td>
<td>Statistics and Research Methods in Applied Health Sciences</td>
<td>3</td>
</tr>
<tr>
<td>HAS 370</td>
<td>Functional Human Nutrition</td>
<td>3</td>
</tr>
<tr>
<td>HAS 375</td>
<td>Biomechanics</td>
<td>3</td>
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<tr>
<td>HAS 379</td>
<td>Integrative Human Physiology</td>
<td>3</td>
</tr>
<tr>
<td>HAS 393</td>
<td>Literature Review in Biokinetics</td>
<td>1</td>
</tr>
<tr>
<td>HAS 398</td>
<td>Physiological Assessment Laboratory</td>
<td>1</td>
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<tr>
<td>HAS 399</td>
<td>Physiological Assessment</td>
<td>1</td>
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<tr>
<td>HAS 445</td>
<td>Advanced Laboratory Techniques in Biokinetics</td>
<td>3</td>
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<tr>
<td>HAS 450</td>
<td>Clinical Neurumuscular Interventions</td>
<td>3</td>
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<tr>
<td>HAS 481</td>
<td>Internship in Human Kinetics and Applied Health Science</td>
<td>3</td>
</tr>
<tr>
<td>HAS 494</td>
<td>Biokinetics Research</td>
<td>1</td>
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<tr>
<td>HAS 495</td>
<td>Biokinetics Symposium</td>
<td>1</td>
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<tr>
<td></td>
<td><strong>Natural and Behavioral Science Core</strong></td>
<td></td>
</tr>
<tr>
<td>BIO 214 &amp; BIO 215</td>
<td>Human Anatomy and Human Anatomy Lab</td>
<td>4</td>
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<tr>
<td>BIO 216 &amp; BIO 217</td>
<td>Human Physiology and Human Physiology Lab</td>
<td>4</td>
</tr>
<tr>
<td>CHE 113 &amp; CHE 113D</td>
<td>General Chemistry I and General Chemistry I Lab</td>
<td>4</td>
</tr>
<tr>
<td>PSY 100</td>
<td>Introduction to Psychology</td>
<td>3</td>
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**Electives (4 credits must be at 300 level or above)**

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<tbody>
<tr>
<td></td>
<td><strong>Exercise Science Emphasis (10 credits)</strong></td>
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<tr>
<td></td>
<td><strong>Applied Health Science Core</strong></td>
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<tr>
<td>HAS 130</td>
<td>Personal and Community Health</td>
<td>3</td>
</tr>
<tr>
<td>HAS 440</td>
<td>Advanced Training for Human Performance</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Natural and Behavioral Science Core</strong></td>
<td></td>
</tr>
<tr>
<td>BIO 104</td>
<td>Human Biology and Human Biology Lab</td>
<td>4</td>
</tr>
<tr>
<td>BIO 120</td>
<td>Introduction to Molecular and Cellular Biology</td>
<td>3</td>
</tr>
<tr>
<td>BIO 122</td>
<td>Introduction to Organismic Biology and Introduction to Organismic Biology Lab</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits**

122

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.

**Human Bioenergetics Emphasis (12 credits)**

<table>
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<tr>
<td></td>
<td><strong>Natural and Behavioral Science Core</strong></td>
<td></td>
</tr>
<tr>
<td>CHE 214 &amp; CHE 215</td>
<td>General Chemistry II and General Chemistry II Lab</td>
<td>4</td>
</tr>
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</table>

Select one of the following sequences:

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<tr>
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<td>Introduction to Molecular and Cellular Biology Lab</td>
<td>4</td>
</tr>
<tr>
<td>BIO 122</td>
<td>Introduction to Organismic Biology and Introduction to Organismic Biology Lab</td>
<td>3</td>
</tr>
</tbody>
</table>
BIO 122 & BIO 122D  \hspace{1cm} Introduction to Organismic Biology and Introduction to Organismic Biology Lab

Select one of the following sequences:  \hspace{1cm} 4

PHY 102 & PHY 102D  \hspace{1cm} Physics of Everyday Life and Physics of Everyday Life-Lab

PHY 202 & PHY 202D  \hspace{1cm} Introductory Physics I and Introductory Physics I Lab

Total Credits  \hspace{1cm} 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.

HAS 110 • Introduction to Healthcare 3 Credits.
An introduction to various health professions and the healthcare system in the United States. Emphasis on understanding the healthcare system, current issues in healthcare, and healthcare career paths. Development of healthcare literacy and navigating healthcare culture. Students examine education, training, and licensure and/or certification requirements for potential careers.
\textit{Offered: Fall, Spring.}

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.
\textit{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.
\textit{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.
\textit{Offered: Fall, Interim, Spring.}

HAS 200Q • Professional Activities: Individual/Dual 4 Credits.
Developmental progressions to improve personal skill through instruction, practice, and corrective feedback. Exposure to various teaching methods while participating in individual and dual sports that include badminton, golf, tumbling, tennis, and track and field. Students lacking competency in lifetime activities are encouraged or required (at discretion of the department) to take one or more separate Q courses to meet competency.
\textit{Prerequisites: Sophomore class standing, Consent of instructor. Offered: Fall 2020.}

HAS 201 • Foundations of Physical Education 2 Credits.
An examination of the historical, philosophical, sociological, and psychological foundations of physical education from its earliest beginnings through the 20th century. Development of a philosophical base for physical education and study of specific issues, trends, and professional opportunities related to physical education and sport.
\textit{Offered: Fall 2019.}
HAS 205QA • Self-expression through Dance 2 Credits.
Provides students with opportunities to experience a wide variety of rhythmic movement and dance to 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 210Q • Professional Activities: Team 3 Credits.
Development of usable progressions and methods for teaching the skills involved in team sports. Emphasis on personal skill practice, with attention to motivation, feedback, and other concepts of motor learning. Sports include flag football, soccer, volleyball, basketball, team handball, and softball. Students lacking in competency in lifetime activities are encouraged (at discretion of the department) to take one or more separate Q courses to meet competency.
Prerequisites: Sophomore class standing, Consent of instructor. Offered: Spring 2019, 2020.

HAS 215Q • Professional Activities: Conditioning 2 Credits.
Developmental progressions to improve personal skill through instruction, practice, and corrective feedback. Exposure to various teaching methods while participating in swimming, weight training, and aerobic exercise. Students lacking competency in lifetime activities are encouraged or required (at discretion of the department) to take one or more separate Q courses to meet competency.
Prerequisites: Sophomore class standing or consent of instructor. Offered: Fall 2019.

HAS 220A • Educational Rhythms 3 Credits.
Principles of teaching rhythmic movement, emphasizing aspects of creativity, square dance, social dance, rhythms with equipment, and ethnic dances from various countries. Includes practice and incorporation of skills into multiple teaching situations.
Prerequisites: Sophomore class standing, Consent of instructor. Offered: Spring 2020.

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.
Offered: Fall, Spring. Special Notes: Students may not receive credit for both HAS 250M and PSY 230M.

HAS 303KZ • Integrative Medicine in a Cross-Cultural Setting 3 Credits.
An introduction to the theories and practices of integrative medicine as a means to promote quality health and wellness. Students in this course are exposed to a variety of health models ranging from ancient Mayan practices to modern Western medical practices in order to develop a more holistic approach to health and well-being. Course is taught in Belize, Central America. Scientific theories include ethnobotany, psychoneuroimmunology, integrative nutrition, and biofeedback. Personal practices may include therapeutic touch, yoga, mindfulness, contemplative prayer, nature therapy, and healing effects of physical activity and movement.
Prerequisites: Laboratory Science (D) course; Mathematics (M) course. Offered: Occasionally interim.

HAS 306 • Administration of Athletics and Physical Education 2 Credits.
Theories, procedures, and problems involved in the administration of athletic and physical education programs at the interscholastic level and in fitness organizations.
Offered: Fall 2019.
HAS 314 • Foundations, Administration, and Evaluation of Health Education 3 Credits. Introduces the health education and health promotion professions, including historical, philosophical, and theoretical foundations of health education. Explores theories of behavior change, the responsibilities of health educators, and investigates career opportunities. Examines the theoretical and practical basis for planning, implementing, administering, and evaluating health education programs. 
Prerequisites: HAS 130. Offered: Spring.

HAS 316 • Curriculum Development in Physical Education 3 Credits. 
Curriculum theory, history, and philosophy. Procedures for translating theory into workable models for physical education, grades K–12, and non-school settings. Writing unit and lesson plans to reflect sequencing of content that differentiates across a range of students' developmental levels. 

HAS 318 • Epidemiology 2 Credits. 
Study of distribution of health and disease in populations and its influential or determining factors. Examination of methodological and analytical techniques to summarize health-related indicators in populations. Focus on the tools and epidemiologic methods used to identify, prevent, and control disease and health-related conditions. Review of the epidemiology of many major diseases and health-related conditions. 
Prerequisites: HAS 130; BIO 104/104D or BIO 122/122D; BIO 238/239 or (BIO 214/215; BIO 216/217). Offered: Fall, even # years.

HAS 320 • Developmental and Adapted Physical Education 3 Credits. Developmental, remedial, and corrective means to meet the needs of special students in grades K-12 and non-school settings. Emphasis on underlying principles of perceptual and motor development, and use of principles in programming for a variety of disabilities. 

HAS 321 • Developmental and Adapted Field Experience 1 Credit. Application of ideas from HAS 320 in a 32-hour field experience with hours dispersed between school and community settings. 
Prerequisites: Sophomore standing. Corequisites: Should be taken concurrently with HAS 320, but may be taken in a different term if necessary. Special Notes: Times and locations are established by the HAS 320 instructor. Offered: Spring 2019, 2021.

HAS 322 • Methods and Materials for Adapted Physical Activity 2 Credits. Resources and methodology for teaching a wide variety of activities to individuals with disabilities. Resources include understanding of DAPE literature, family systems, and community services as they relate to the transition process. Methodology includes planning lessons, incorporating assistive devices, and utilizing assessment tools. 
Prerequisites: EDU 250, HAS 320. Offered: Fall, odd # years.

HAS 331 • Organization and Administration of Athletic Training 3 Credits. Methods for planning, coordinating, and supervising all administrative components of an athletic training program pertaining to healthcare, financial management, training room management, personnel management, and public relations. 
Prerequisites: HAS 325. Offered: Fall.
HAS 332 • Advanced Athletic Training - Lower Extremity 3 Credits.
Advanced techniques for the evaluation and treatment of athletic injuries to the lower extremity.
Prerequisites: HAS 325; BIO 214/215; BIO 216/217. Special Notes: This course is no longer offered at the undergraduate level. Offered: Fall.

HAS 333 • Advanced Athletic Training - Upper Extremity 3 Credits.
Advanced techniques for the evaluation and treatment of athletic injuries to the upper extremity.
Prerequisites: HAS 325; BIO 214/215; BIO 216/217. Special Notes: This course is no longer offered at the undergraduate level. Offered: Spring.

HAS 335 • Clinical Experience in Athletic Training I 1 Credit.
Clinical experiences that provide opportunities to practice, refine, and master previously learned psychomotor and cognitive athletic training competencies.
Prerequisites: Admission to athletic training program; HAS 325. Offered: Fall.

HAS 336 • Clinical Experience in Athletic Training II 1 Credit.
Clinical experiences that provide opportunities to practice, refine, and master previously learned psychomotor and cognitive athletic training skills.
Prerequisites: HAS 335. Offered: Interim.

HAS 337 • Clinical Experience in Athletic Training III 1 Credit.
Clinical experiences that provide opportunities to practice, refine, and master previously learned psychomotor and cognitive athletic training competencies.
Prerequisites: HAS 336. Offered: Spring.

HAS 340 • School Health and Drug Issues 3 Credits.
Examines the roles of teachers and schools in responding to adolescent health problems, with particular attention to health promotion, prevention, and referral, and to the unique role of the school health educator in this process. Topics include alcohol/drug use and abuse, mental health issues, eating disorders, violence, child abuse and neglect, and injuries. Emphasis on the characteristics of effective coordinated school health programs, including the development of comprehensive prevention curriculum.

HAS 345 • Disease and Injury Control 2 Credits.
Analysis of chronic diseases, infectious diseases, and injuries from both personal and societal perspectives. Focuses on the prevention, identification, and control of diseases and injuries. Examines the relationship of health promotion and lifestyle to disease and injury.
Prerequisites: HAS 120; HAS 130. Offered: Fall, odd # years.

HAS 351 • Therapeutic Interventions I 3 Credits.
Various therapeutic modalities used in the treatment of sport-related injuries. Includes the use of thermal, electrical, light, and acoustical media as modalities for therapy. The physiological effects, clinical applications, and techniques for use are discussed for each modality. Includes practical experience.
Prerequisites: HAS 325, BIO 214/215. Special Notes: This course is no longer offered at the undergraduate level. Offered: Fall.

HAS 352 • Therapeutic Interventions II 3 Credits.
Design, implementation, and supervision of rehabilitation programs for sport-related injuries. Topics include reconditioning programs, manual therapy, and functional rehabilitation. Includes laboratory experience in the various techniques used in therapeutic exercise.
Prerequisites: HAS 325, HAS 375. Special Notes: This course is no longer offered at the undergraduate level. Offered: Spring.

HAS 360 • Advanced Emergency Care 3 Credits.
A comprehensive course for the healthcare practitioner who must initially evaluate and stabilize a physically active individual in a trauma situation. Teaches rapid assessment, resuscitation, packaging, and transportation of the ill or injured.
Prerequisites: HAS 325, HAS 120. Offered: Spring.

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 122 (or equivalency) or CHE 113/113D; HAS 170. Offered: Fall, Spring.
HAS 375 • Biomechanics 3 Credits.
Prerequisites: BIO 214/215, BIO 238/239; Mathematics (M) course. Offered: Fall, Spring. 
Special Notes: PHY 102/102D and HAS 247 are recommended prerequisites.

HAS 376 • Exercise Physiology and Assessment 3 Credits.
Basic principles of measurement and evaluation, particularly as they relate to physiological training and adaptation in the context of physical education instruction for normal and special populations. 

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 214/215; BIO 216/217. Offered: Fall, Spring.

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 exams. 
Corequisites: Concurrent registration in 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 436 • Clinical Experience in Athletic Training IV 1 Credit.
Clinical experiences at an off-campus clinical affiliate site designed to provide athletic training students the opportunity to practice, refine, and master previously learned psychomotor and cognitive athletic training competencies. 
Prerequisites: HAS 337; Senior standing. Offered: Fall, Interim, Spring.

HAS 439 • Clinical Experience in Athletic Training V 3 Credits.
Acquire 320+ hours of athletic training experience working with a Bethel University athletic team for a complete season of competition, under the supervision of an athletic training program preceptor. 
Prerequisites: HAS 337. Offered: Fall, Interim, 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 216/217; BIO 238/239 or permission 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.
Clinical Neuromuscular Interventions focuses on learning to synthesize academic content from a variety of foundational classes in the department, the relational and hands-on skills of the assessment lab, and guidance from a practicing clinician to foster an in-depth exploration of a variety of topics. Explores a basic review of the anatomy and physiology of the nervous system and builds to investigate neurologic atypical and/or pathological conditions through a series of guided case studies. This course is a blend of independent and team learning, hands-on labs, and experiential observations. Each case study presented will assist in understanding both the clinical context of a condition and the general application of health, fitness, and wellness concepts after discharge from a medical setting.
Prerequisites: HAS 375; HAS 399. Offered: Fall, Spring.

HAS 478 • Senior Seminar in Athletic Training 3 Credits.
A capstone course in which students study and implement competencies in professional development and responsibility, as well as evidence-based medicine. Students complete and present an in-depth, evidence-based medicine research project. Aids student preparation for the Board of Certification Exam in Athletic Training.
Prerequisites: Admission to the athletic training education program. Offered: Spring.

HAS 481 • Internship in Human Kinetics and Applied Health Science 1-3 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, 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.