Human Biology

(Bachelor of Science)

Human Biology focuses on the study of the biological, physiological, nutritional, developmental, and evolutionary aspects of humans. The major has an extensive range of offerings with core courses emphasizing human function, genetics, nutrition, and evolution.

Students who major in Human Biology gain extensive skills within the laboratory environment, including physiological, cellular, molecular, and statistical analyses. The laboratories house state-of-the-art instruments and equipment for students to gain valuable experience. Participation in faculty research projects or internships is strongly encouraged.

All Human Biology majors complete an area of emphasis within the program. There are five areas of emphasis within the major:

- The **health science emphasis** provides preparation for medical, dental, physician assistant and other health-related professional schools; for graduate programs in biological or biomedical sciences; or entry-level research positions with pharmaceutical or biotechnology companies.
- The **exercise science emphasis** provides a background for careers in physical therapy, occupational therapy, athletic training, strength and conditioning, exercise physiology, fitness, or bio-mechanics.
- The **nutritional sciences/dietetics emphasis** is accredited as a Didactic Program in Dietetics by the Accreditation Council for Education in Nutrition and Dietetics (ACEND) of the Academy of Nutrition and Dietetics. Employment opportunities include healthcare, nutrition education, governmental and community health agencies, fitness facilities, public policy, agribusiness, and the food service industry. Students who successfully complete this program may apply for entry into a Dietetic Internship program, which is required to become a registered dietitian. Registered dietitians provide food and nutritional services with a focus on health promotion and disease prevention.
- The **applied health emphasis** provides preparation for careers in public health. Students interested in pursuing a MPH (Master's of Public Health) and/or working in community health will benefit from this curriculum. This includes students considering a career as a "health inspector" as it helps prepare them for the registered sanitarian exam. http://www.weha.net/registeredsanitarianinfo.php
- The **general emphasis** is appropriate for students seeking careers in industrial, managerial, or sales positions in biological or health-related industries.
- The **cytotechnology emphasis** is offered in affiliation with professional programs of cytotechnology at UW-Madison and the Mayo Clinic. Cytotechnology is the microscopic study of cells primarily for detection of cancer. This emphasis leads to a degree in Human Biology with eligibility for professional certification.

The Human Biology major/minor may be combined with other majors/minors for students interested in areas such as scientific journalism, scientific illustration, biological photography, genetic counseling, bioinformatics, public health administration, pharmaceutical sales, or other health-related professions.

Students may study abroad or at other campuses in the United States through UW-Green Bay’s participation in international exchange programs and National Student Exchange. Travel courses are another option. For more information, contact the Office of International Education at (920) 465-2190 or see http://www.uwgb.edu/international/.

Area of Emphasis

Students must complete requirements in one of the following areas of emphasis:

- Health Science (http://catalog.uwgb.edu/archive/2018-2019/undergraduate/programs/human-biology/major/healthscience-emphasis)
- Exercise Science (http://catalog.uwgb.edu/archive/2018-2019/undergraduate/programs/human-biology/major/exercisescience-emphasis)
- Applied Public Health (http://catalog.uwgb.edu/archive/2018-2019/undergraduate/programs/human-biology/major/pub-health)
- Nutritional Sciences/Dietetics (http://catalog.uwgb.edu/archive/2018-2019/undergraduate/programs/human-biology/major/nutritional-emphasis)
- General Human Biology (http://catalog.uwgb.edu/archive/2018-2019/undergraduate/programs/human-biology/major/general-emphasis)
- Cytotechnology (http://catalog.uwgb.edu/archive/2018-2019/undergraduate/programs/human-biology/major/cytotechnology-emphasis)

Areas of Emphasis

Students must complete requirements in one of the following areas of emphasis:

- Applied Human Biology Emphasis (http://catalog.uwgb.edu/archive/2018-2019/undergraduate/programs/human-biology/minor/applied-emphasis)
- General Human Biology Emphasis (http://catalog.uwgb.edu/archive/2018-2019/undergraduate/programs/human-biology/minor/general-emphasis)

The following are curriculum guides for the four-year Human Biology degree program and is subject to change without notice. Students should consult a Human Biology program advisor to ensure that they have the most accurate and up-to-date information available about a particular four-year degree option.

- Human Biology Major with Exercise Science Emphasis Curriculum Guide (http://catalog.uwgb.edu/archive/2018-2019/undergraduate/programs/human-biology/cg/exercise)
- Human Biology Major with Health Science Emphasis Curriculum Guide (http://catalog.uwgb.edu/archive/2018-2019/undergraduate/programs/human-biology/cg/health-science)
- Human Biology Major with Nutritional Sciences / Dietetics Emphasis Curriculum Guide (http://catalog.uwgb.edu/archive/2018-2019/undergraduate/programs/human-biology/cg/dietetics)
- Human Biology Major with General Emphasis Curriculum Guide (http://catalog.uwgb.edu/archive/2018-2019/undergraduate/programs/human-biology/cg/general)
- Human Biology Major with Cytotechnology Emphasis Curriculum Guide (http://catalog.uwgb.edu/archive/2018-2019/undergraduate/programs/human-biology/cg/cytotechnology)

Jared Dalberg; Associate Professor; M.E., Augusta State University

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Carly Kibbe; Assistant Professor; Ph.D., University of Wisconsin - Madison

Paul R Mueller; Assistant Professor; Ph.D., California Institute of Technology

Sara A Wagner; Lecturer; M.S., University of Alabama

Courses

HUM BIOL 102. Introduction to Human Biology. 3 Credits.
Basic concepts, principles, and processes in human biology; the origin of life, evolution, cells, biochemical processes, physiological systems, genetics and metabolism.
Fall and Spring.

HUM BIOL 116. First Aid and Emergency Care Procedures. 3 Credits.
Student will learn all aspects of first aid training such as victim assessment and treating all types of illnesses and injuries; all skills for Professional Rescuer CPR; dealing with infectious diseases and their transmission.
Fall and Spring.

HUM BIOL 198. First Year Seminar. 3 Credits.
topics vary
Reserved for New Incoming Freshman.

HUM BIOL 202. Ethnic Minorities in Science. 3 Credits.
The history and culture of science in the US will be examined, in order to understand what has led to the current under-representation of ethnic minorities in science. The often overlooked contributions of scientists who are members of ethnic minorities will be recognized.
Spring.

HUM BIOL 204. Anatomy and Physiology. 5 Credits.
This lecture and laboratory course examines the fundamental structure and function of tissues, organs, and systems of the human body.
P: Biology 201/202 with at least a C grade; AND Chem 207 or conc enr.
Fall and Spring.

HUM BIOL 205. Biotechnology and Human Values. 3 Credits.
Examination of technological developments in biology and medicine, including genetic, behavioral, and organism modification and the moral and ethical concerns raised by such technologies.
P: Hum Biol 102 or Biology 201/202.
Fall and Spring.

HUM BIOL 206. Fertility, Reproduction, and Family Planning. 3 Credits.
Factors that influence reproduction and fertility, i.e., physiological, psychological, social, cultural, and ethical; the methods available for limiting or increasing reproduction; the nature of family planning programs.
P: Hum Biol 102 or Biology 201/202.
Fall and Spring.

HUM BIOL 208. Scientific Conditioning of the Athlete. 2 Credits.
Principles and techniques of training - including strength, agility, and endurance. Interrelationships between training and athletic participation, principles of physiology of exercise, and general and specific techniques of physical conditioning are studied.
P: Hum Biol 102 with a grade of C or better OR Biology 201/202 with a grade of C or better.
Fall Only.

HUM BIOL 210. Prevention and Treatment of Athletic Injuries. 3 Credits.
This is an introductory course focusing on the basic principles of athletic training (sports medicine). Emphasis will be placed on the role of the athletic trainer in regards to injury prevention, health/injury assessment, and management/rehabilitation of sports related injuries. Content includes history of athletic training, athletic training room procedures, physiology of healing, acute emergency management, and medical referral process. Students learn techniques related to taping, wrapping, splinting, ambulatory aides, and modalities applied to the healing process.
P: Hum Biol 102 with a grade of C or better OR Biology 201/202 with a grade of C or better.
Fall and Spring.

HUM BIOL 217. Human Disease and Society. 3 Credits.
Impact of diseases in humans. Emphasizes the major diseases, their causes, individual effects, historical significance, and methods of control.
Fall and Spring.

HUM BIOL 299. Travel Course. 1-4 Credits.
Travel courses are conducted to various parts of the world and are led by one or more faculty members. May be repeated to different locations.
P: cons of instr & prior trip arr & financial deposit.

HUM BIOL 310. Human Genetics. 3 Credits.
The molecular basis of heredity, genetic diseases, and genetic technologies including cloning, genetic testing, and gene therapy will be evaluated.
P: Biology 201/202 with at least a C grade ; Chem 108 or 212 with at least a C grade.
Fall and Spring.

HUM BIOL 322. Epidemiology. 3 Credits.
Foundational knowledge of epidemiology, the study of disease in/among populations, and relevant introductory bio-statistical methods and practical applications to public health and biomedical sciences.
REC: Bio 201 with a grade of C or higher AND Bio 202 with a grade of C or higher; OR Hum Bio 202 with a grade of C or higher
Spring.

HUM BIOL 324. The Biology of Women. 3 Credits.
This course will examine the physiology of the adult female body and will address health issues that are unique to or different in women. Emphasis will be placed on the effects of female sex hormones on multiple processes (reproductive, nervous, endocrine, and cardiovascular) in the body.
P: Hum Biol 102 with at least a C grade or Biology 201/202 with at least a C grade.
Spring.

HUM BIOL 331. Science and Religion: Spirit of Inquiry. 3 Credits.
This course examines the differing world views of science and religion; origins of science in the Judeo-Christian West; sources of conflicts; domains of validity; and of limitations of science and religion. This course may not be used as upper-level elective credits for a Human Biology major or minor.
P: Hum Biol 102 with at least a C grade or Biology 201/202 with at least a C grade; and sophomore status
Spring.

HUM BIOL 333. Principles of Sports Physiology. 3 Credits.
This course emphasizes the applied aspects of (exercise) physiology. Major topics include: use of energy during exercise, principles of training, aerobic training, interval training, strength training, gender and exercise, ergogenic aids, e.g., blood doping, and the impact of environmental conditions, e.g., altitude, on exercise.
P: Hum Biol 204 with at least a C grade
Spring.

HUM BIOL 341. Human Anatomy Laboratory. 1 Credit.
This course involves learning human anatomy and human anatomy dissection techniques using cadavers through the process of dissecting and analyzing human cadaver specimens. Students will learn detailed human anatomy for a specific area of interest by dissecting and identifying anatomical components of that area. In addition, students will learn major significant human anatomy for the entire human body to include muscles, nerves, blood vessels, glands, GI tract and reproductive systems.
P: Hum Biol 204 AND approval by instructor REC: Hum Biol 351, Biology 340
Fall Only.

HUM BIOL 351. Kinesiology. 4 Credits.
This course provides an in depth study of the human musculoskeletal system as it pertains to movement of the body and/or its parts. There are three major components to this course - anatomy (detailed musculoskeletal anatomy), functional anatomy (understanding bodily movement in light of anatomical structure), and biomechanics (mathematical quantification of bodily movement, forces, etc.)
P: Hum Biol 204 with a grade of C or higher AND Chem 207 or conc
Fall Only.

HUM BIOL 360. Exercise Physiology. 3 Credits.
In this course, students learn the ventilatory, cardiovascular, muscular, hormonal, and metabolic response to (acute) exercise and exercise training.
P: Hum Bio 204 with a grade of C or higher AND Math 260 AND concurrent enrollment in Hum Biol 361
Fall Only.

HUM BIOL 361. Human Physiology Lab - Exercise and Metabolism. 1 Credit.
The laboratory involves measurement, analysis, and interpretation of a variety of physiological parameters that are associated with physical exercise. Students will do experiments designed to assess exercise related changes in heart rate, blood pressure, ventilation, and oxygen consumption. Additionally, students will do assessments on EKG, pulmonary function, body composition and maximal exercise capacity.
P: Concurrent enrollment in Hum Biol 360.
Fall Only.

HUM BIOL 401. Art and Science. 1 Credit.
Examination of art and science as ways of knowing, including discussion of various points of view regarding the differences and similarities between the two.
P: Hum Biol 102 or Biology 201/202 or Biology 203/204
Spring.

HUM BIOL 402. Human Physiology. 3 Credits.
This course examines the physiologic functions of the major human organ systems. Topics include cell physiology; muscle, nervous, respiratory, circulatory, excretory, digestive, immune, and reproductive system functions; hormonal regulation pathways; and the role of physiology in diseases and medicine.
P: Hum Biol 204 with at least a C grade; OR Biology 201/202 with at least a C grade and Biology 203/204 with at least a C grade; OR transfer cse Biology 002; AND Chem 108 with at least a C grade or 212 with at least a C grade.
Fall and Spring.

HUM BIOL 403. Human Physiology Laboratory. 1 Credit.
This course examines fundamental physiologic principles in a laboratory setting. Topics will include histology; muscle and nerve functions; respiratory and cardiac functions; and urinary system function. Students will gain experience in the process of designing, evaluating and presenting experimental results and develop skills in the reading of scientific literature.
P: Hum Biol 402 with at least a C grade or conc enr or Biology 346 with at least a C grade or conc enr; AND MATH 260; AND CHEM 207 or conc enr
Spring.

HUM BIOL 405. Biotechnology and Ethics. 3 Credits.
Examination of the science and ethics of biotechnology including genomics, eugenics, recombinant DNA technology, reproductive technology, stem cells, drugs, modified organisms, and treatment of diseases.
P: none; REC: Hum Biol 102 or Biology 201/202.
Fall and Spring.

HUM BIOL 413. Neurobiology. 3 Credits.
This course will cover the physiological and molecular mechanisms of nervous system function. Topics include neuroanatomy; development and differentiation of neuronal cells; chemical and electrical functions; synaptic pharmacology; sensory receptors; learning and memory; and various disease states and medical treatments.
P: Biology 303 with at least a C grade; and Hum Biol 402 with at least a C grade or Biology 346 with at least a C grade.
Fall Only.

HUM BIOL 422. Immunology. 3 Credits.
This course examines the mechanisms of vertebrate, particularly human defense against microbial invasion and cancer.
P: Biology 302 with at least a C grade or 307 with at least a C grade; Chem 212 with at least a C grade; and Math 260 with at least a C grade
Spring Odd.

HUM BIOL 423. Immunology Lab. 1 Credit.
This laboratory course examines the mechanisms of innate and acquired immunity.
P: Hum Biol 422 or conc enr AND CHEM 207 or conc enr
Spring Odd.

HUM BIOL 426. Cancer Biology. 3 Credits.
This course examines the genetic changes and molecular events that lead to abnormal cell growth and cancer. Topics covered include oncogenes, tumor suppressor genes, angiogenesis, invasion and metastasis, cancer stem cells, therapeutic approaches for cancer treatment, and cancer prevention.
P: Biology 307 or Hum Biol 310 or Biology 410 with at least a C grade
Fall Only.

HUM BIOL 427. Cancer Biology Laboratory. 1 Credit.
In this inquiry-based laboratory course, students will use molecular and cellular techniques to conduct research projects that examine the hallmark characteristics of cancer cells.
P: Hum Biol 426 or concurrent enrollment
Spring Even.

HUM BIOL 444. Endocrinology. 3 Credits.
This course examines the major endocrine organs of the body and the processes that are controlled / integrated by hormones. Clinical examples of endocrine disease (e.g. diabetes, Graves disease) will be considered from the viewpoint of the insight they give to the understanding of endocrine physiology.
P: Hum Biol 402 with a C grade or better.
Spring.

HUM BIOL 478. Honors in the Major. 3 Credits.
Honors in the Major is designed to recognize student excellence within interdisciplinary and disciplinary academic programs.
P: min 3.50 all cses req for major and min gpa 3.75 all UL cses req for major.
Fall and Spring.

HUM BIOL 495. Research in Human Biology. 1-5 Credits.
Work closely with a faculty member to plan, perform, evaluate, and report on laboratory research in human biology or a related field.
P: Hum Biol 207 or Env Sci 207 and approval by faculty mentor.
Fall and Spring.

HUM BIOL 497. Internship. 1-16 Credits.
Supervised practical experience in an organization or activity appropriate to a student's career and educational interests. Internships are supervised by faculty members and require periodic student/faculty meetings.
P: jr st.
Fall and Spring.

HUM BIOL 498. Independent Study. 1-4 Credits.
Independent study is offered on an individual basis at the student's request and consists of a program of learning activities planned in consultation with a faculty member. A student wishing to study or conduct research in an area not represented in available scheduled courses should develop a preliminary proposal and seek the sponsorship of a faculty member. The student's advisor can direct him or her to instructors with appropriate interests. A written report or equivalent is required for evaluation, and a short title describing the program must be sent early inthe semester to the registrar for entry on the student's transcript.
P: fr or so st with cum gpa > or = 2.50; or jr or sr st with cum gpa > or = 2.00.
Fall and Spring.

HUM BIOL 499. Travel Course. 1-6 Credits.
Travel courses are conducted to various parts of the world and are led by one or more faculty members. May be repeated to different locations.
P: cons of instr & prior trip arr & financial deposit.