Human Physiology

The mission of Gonzaga’s Department of Human Physiology is to develop ethical, critical thinkers, and scientists who possess the creativity, intelligence, and initiative necessary to be a responsible member of scientific and clinical professions. The Bachelor of Science (B.S.) degree in Human Physiology requires students develop significant content knowledge, analytical thinking skills, knowledge of scientific principles and research, and an ability to communicate their knowledge to others. These capacities prepare students for pursuing a graduate career at other institutions in the physiological sciences or clinically related professions such as medicine and allied health science.

THE PROGRAM

Human physiology is the science of the mechanical, physical, and biochemical functions of humans: their organ systems, organs, and the cells of which they are composed. The basic, foundational principle for the study of human physiology is the maintenance of homeostasis through the operation of complex control systems. These systems encompass all levels of the hierarchy of human structure and function (i.e. cells, tissues, organs, organs systems, and the organism). Each course in the curriculum emphasizes an integrated study of humans across this hierarchy of structure and function. Consequently, a reductionist approach that separates the curriculum into specific courses such as “molecular physiology,” “cell physiology,” “histology,” or “organ physiology,” has been purposely avoided. Topics covered across the curriculum include:

- General Physiological Concepts - body organization, homeostasis, control systems, biochemistry, cell structure, cell function, histology, metabolism, membranes, and cellular communication
- Systems Physiology - neurophysiology, muscular physiology, cardiovascular physiology, respiratory physiology, renal physiology, fluid and acid-base physiology, digestive physiology, endocrinology, immunology, and reproductive physiology
- Integrative Physiology - exercise physiology, environmental physiology, physiology of aging, biomechanics, and nutrition

The Human Physiology major, along with selected electives from other departments across the University, provides students with preparation for graduate or professional study in a variety of fields. Human Physiology majors express interest in pursuing various health professions, such as:

- physiologist
- physical therapist
- physician
- physician’s assistant
- occupational therapist
- exercise physiology and biomechanics research
- sports medicine
- pharmacist
- public health
- dentist
- chiropractor
- nursing

The program uniquely emphasizes the scientific basis and mechanisms of human function, adaptation, development and aging, health and disease, and performance.
STUDENT RESEARCH PROJECTS

As a part of independent studies and/or requirements for upper-division courses, majors complete research projects, some of which are accepted for publication and/or presentation at regional and national scientific meetings. The following are examples of student/faculty research that have been accepted for presentation or publication:


Lindecker, P. and Higginson, B. Validation of inertial sensors for use in shooting event detection. American Society of Biomechanics Conference, Columbus, Ohio, 2015.


Higginson, B., and Wheeler, J. Contributions of an integrated bolster system to dynamic load stability while wearing a backpack over body armor. American Society of Biomechanics Conference, Columbus, Ohio., 2015.


### GRADUATE SCHOOLS

**Biomedical Sciences**  
Creighton University

**Biomechanics**  
University of Alberta-Calgary  
University of Oregon  
University of Western Australia  
Cardiac Rehabilitation  
University of Oregon

**Chiropractic Medicine**  
Life Chiropractic College West  
Palmer College of Chiropractic

**Dental School**  
Oregon Health & Science University  
University of British Columbia

**Exercise Physiology**  
Baylor University  
Boise State University  
Central Washington University  
Long Beach State University  
Montana State University  
Oregon State University  
Northern Colorado University  
San Diego State University  
San Jose State University  
Springfield College  
University of Denver  
University of Oregon  
University of Utah  
Western Washington University

**Medical School**  
Creighton University  
Georgetown University  
Loma Linda University  
Northwest Osteopathic Medical School  
Medical College of Wisconsin  
Oregon Health & Science University  
Tulane University  
University of Colorado  
University of Nevada  
University of Southern California  
University of Vermont  
University of Washington  
Virginia Commonwealth University  
Wake Forest University  
University of Albertina-Calgary  
University of Oregon  
University of Western Australia

**Molecular Physiology**  
University of Vermont

**Neurophysiology**  
University of California, Davis

**Nuclear Medicine**  
Swedish Hospital (Seattle, WA)

**Nursing**  
Johns Hopkins University  
Linfield College  
Seattle University  
University of Pennsylvania  
University of Utah

**Nutrition**  
Bastyr University  
Washington State University

**Occupational Therapy**  
Belmont University  
Colorado State University  
Creighton University  
Eastern Washington University  
George Washington University  
Idaho State University  
Midwestern University  
Nova Southeastern University  
Oregon State University  
Tufts University  
Tulane University  
University of Puget Sound  
University of Southern California  
University of Washington

**Optometry**  
Ferris State University  
Midwestern University  
Pacific University  
University of Michigan  
University of Southern California  
Western University of Health Sciences

**Physical Therapy**  
Chapman University  
Columbia University  
Creighton University  
Duke University  
Eastern Washington University  
Emory University  
George Washington University  
Northwestern University  
Old Dominion University  
Pacific University  
Regis University  
Sacred Heart University  
Samuel Merritt University  
St. Catherine University  
University of Illinois  
University of Maryland  
University of Minnesota  
University of Montana  
University of New England  
University of Pittsburgh  
University of Puget Sound  
University of St. Augustine  
University of Southern California  
University of Utah  
University of Washington  
Washington University in St. Louis

**Physician's Assistant**  
Midwestern University (Phoenix, AZ)  
University of New Mexico

**Public Health**  
George Washington University  
Oregon State University  
University of Washington
THE PEOPLE
Faculty in the Department of Human Physiology are active scholars and health/fitness specialists whose academic and professional expertise is invaluable to Human Physiology students.

FACULTY CONTACTS, RESEARCH INTERESTS, & PUBLICATIONS

Stephen B. Conant
M.S., Montana State University, Bozeman Lab Specialist and Instructor advanced technology as a mechanism for community building and collaboration in public health policy and public health research conant@gonzaga.edu

ACSM - Northwest Chapter Immediate Past President, ACSM National Health and Science Policy Committee, ACSM-certified Health/Fitness Specialist®, National Strength & Conditioning Association-Certified Strength & Conditioning Specialist.

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Brian K. Higginson
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