The mission of the Department of Human Physiology at Gonzaga is to foster undergraduate education, scientific research, and dissemination of information in the physiological and biomedical sciences. We value the aspirations, individuality, and success of our students, faculty, and staff who work and learn here. We value academic freedom, creative expression, the pursuit of excellence, and the discernment that stems from logic and reason. We aspire to be a preeminent and innovative undergraduate program in the physiological sciences.

Human Physiology

Human physiology is the science of the mechanical, physical, and biochemical functions of humans, and serves as the foundation of modern medicine. As a discipline, it connects science, medicine, performance, and health to create a framework for understanding how the human body adapts to stress, physical activity, and disease.

The Bachelor of Science in Human Physiology degree is for students who plan to pursue advanced degrees in the health professions and biomedical sciences. 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).

OUTCOMES

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. Students pursing a BS in Human Physiology express interest in pursuing various careers, such as (but not limited to):

- Academia (research scientist, university professor)
- Chiropractor
- Dentist
- Nursing
- Occupational therapist
- Pharmacist
- Physical therapist
- Physician
- Physician’s assistant
- Physiologist
- Public health
- Research scientist
- Sports medicine
RESEARCH OPPORTUNITIES
As a part of independent studies and/or requirements for upper-division courses, students complete novel research studies, which are often accepted for publication and/or presentation at regional and national scientific meetings. Recent topics of studies completed by Gonzaga students and faculty include:

- The effectiveness of the combination of compression and elevation on recovery after a Wingate test.
- The effect of visual flow on cycling in a virtual environment.
- Utilizing ATP-dependent chromatin-remodeling complexes to study vascular biology.
- Temporal deception and one-mile running time: Physiological and psychological variables affecting consistency of exercise conditions.
- Effect of glute-targeting warm-up on muscle activation and knee kinematics during weighted bilateral squat.
- Ground reaction forces and temporal characteristics that define cutting performance.
- Effects of body mass and chair height on muscle activation and balance during sit-to-stand.
- Short term effects of transcutaneous electrical stimulation of the quadriceps on recovery from exhaustive exercise.
- Expression of chromatin-remodeling enzymes in a high-fat diet mouse model.
- Lower limb kinematics are different between maximal and submaximal running.
- Comparing cardiovascular risk factors between first- and fourth-year undergraduate students at GU.

COURSES
Each course in the curriculum emphasizes an integrated study of humans across this hierarchy of structure and function. 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

For more information: gonzaga.edu/human-physiology

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GRADUATE SCHOOLS

Biomedical Sciences
• Creighton University

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

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
• Northern Colorado University
• Oregon State 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
• Medical College of Wisconsin
• Northwest Osteopathic Medical School
• 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

Molecular Physiology
• University of Vermont

Neurophysiology
• University of California, Davis

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
• Washington University in St. Louis

Optometry
• Ferris State University
• Marshall B. Ketchum University
• Midwestern University
• Pacific University
• University of Michigan
• University of Southern California
• Western University of Health Sciences

Physical Therapy
• Creighton University
• Duke University
• Emory University
• Mayo Clinic School of Health Sciences
• MGH Institute of Health Professions
• Northwestern University
• Regis University
• University of Colorado – Denver
• University of Illinois – Chicago
• University of Maryland
• University of Minnesota
• University of Pittsburgh
• University of Southern California
• University of Utah
• Washington University in St. Louis

Physician’s Assistant
• Idaho State University
• Midwestern University
• University of New Mexico

Public Health
• George Washington University
• Oregon State University
• University of Washington