



Course Syllabus

Course Code	Course Title	ECTS Credits
BIOL-115	Introduction to Human Physiology	6
Prerequisites	Department	Semester
None	Department of Life Sciences	Fall/Spring
Type of Course	Field	Language of Instruction
Required	Biology	English
Level of Course	Lecturer(s)	Year of Study
1 st Cycle	Dr Vicky Nicolaidou	1 st
Mode of Delivery	Work Placement	Corequisites
Face-to-face	None	None

Course Objectives:

This course offers an introduction to the fundamental principles of human physiology, focusing on systems that are essential to understanding human behaviour and psychological functions. Students will acquire basic knowledge of Biology and learn about the basic structure and function of various body systems. Particular emphasis will be placed on those systems that interact with psychological processes, such as the nervous, endocrine, and sensory systems. No prior knowledge of biology or physiology is required.

The main objectives of the course are to:

- give students an understanding of the basic principles of biology, cell structure and function
- introduce the basic structure and function of the major organ systems in the human body.
- offer examples of how physiological mechanisms can influence psychology and psychological phenomena.
- integrate knowledge of physiology with psychological concepts to better understand the human body's response to external stimuli.

Learning Outcomes:

After completion of the course students are expected to be able to:

1. Have an understanding of the basic principles of biology, cell structure and function.
2. Understand basis principles of human genetics and trait inheritance.
3. Understand the basic structure and function of the major organ systems in the human body.
4. Apply physiological concepts to psychological phenomena such as stress, emotion, and cognition.
5. Analyze how physiological mechanisms influence perception, learning, and memory.
6. Integrate knowledge of physiology with psychological concepts to better understand the human body's response to external stimuli.

Course Content:

Week 1: Introduction to Human Biology

- Learning about Human Biology
- Basic cell biology: cell structure and function
- Introduction to Genetics and inheritance

Week 2: Introduction to Human Physiology & Homeostasis

- Tissues, Organs and organ systems
- Overview of physiology and its relevance to psychology
- Homeostasis and feedback systems

Week 3: The Cardiovascular System – Heart, Blood, and Circulation

- Structure and function of the heart, blood vessels and circulation
- Cardiovascular health and its connection to mental health
- Effects of stress and emotion on cardiovascular function

Week 4: Immune System – Defence and Psychological Interactions

- Structure and function of the immune system
- Psychoneuroimmunology: how the mind influences immune responses
- Stress and immunity, Autoimmune diseases and their psychological aspects

Week 5: The Respiratory System – Breathing and Oxygenation

- Anatomy of the respiratory system, physiology of gas exchange
- Relationship between respiration, anxiety, and stress
- Conditions affecting respiration and mental well-being (e.g., sleep apnea)

Week 6: The Digestive System – Nutrition and Energy Metabolism

- Anatomy and function of the digestive tract, nutrient absorption and metabolism
- The gut-brain axis: how digestion affects mood and cognition and the reverse
- Eating disorders and physiological connections to behaviour

Week 7: The Nervous System – Neurons

- Structure of neurons, action potentials and synaptic transmission
- Neurotransmitters and their psychological effects
- Neurological diseases impacting psychological functions

Week 8: The Nervous System – Central and Peripheral Nervous System

- Organization of the central and peripheral nervous systems
- Brain structures: anatomy and function,
- Interaction between brain regions in behaviour and cognition

Week 9: The Sensory Systems – Vision, Hearing, and Perception

- Overview of the sensory systems (visual, auditory, etc.)
- Physiology of perception and its relation to cognition
- Sensory processing disorders and psychological implications

Week 10: The Endocrine System – Hormones and Behaviour

- Overview of the endocrine system
- Hormones and their physiological and psychological effects
- Stress response
- Endocrine system disorders and psychological implications

Week 11: The Musculoskeletal System – Movement and Posture

- Overview of muscles and bones, mechanisms of muscle contraction
- Impact of physical activity on psychological well-being
- Disorders affecting movement and their psychological effects

Week 12: Integration of Physiology and Psychology – Stress, Emotion, and Cognition

- Revisiting major systems through the lens of psychological functions
- Stress physiology and its effects on health and behavior
- The physiological basis of emotions
- Linking physiological states to cognitive performance

Learning Activities and Teaching Methods:

- Lectures with multimedia support
- Case studies linking physiological systems with psychological conditions
- Group discussions to encourage integration of physiological knowledge into psychological contexts
- Interactive quizzes and assessments

Assessment Methods:

Midterm examination, project/presentation, final examination

Required Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Human Biology	Cecie Starr, Beverly McMillan	Cengage	11th Edition	9780357692646

Recommended Textbooks / Readings:

Title	Author(s)	Publisher	Year	ISBN
Human Physiology: An Integrated Approach	Dee Unglaub Silverthorn	Pearsons	8 th Edition	0134605195
Supplementary Material: Selected readings on psychophysiology and recent research articles linking physiology to psychology.				