

Glendale College

Course Outline of Record Report

Course ID 005080
Cyclical Review - May 2025

BIOL121 : Human Physiology

General Information

Author:	<ul style="list-style-type: none"> Karoline Rostamiani
Course Code (CB01) :	BIOL121
Course Title (CB02) :	Human Physiology
Department:	BIOL
Proposal Start:	Spring 2026
TOP Code (CB03) :	(0410.00) Anatomy and Physiology
CIP Code:	(26.0901) Physiology, General.
SAM Code (CB09) :	E - Non-Occupational
Distance Education Approved:	No
Will this course be taught asynchronously?:	No
Course Control Number (CB00) :	CCC000229528
Curriculum Committee Approval Date:	05/28/2025
Board of Trustees Approval Date:	07/08/2025
Last Cyclical Review Date:	05/28/2025
Course Description and Course Note:	<p>BIOL 121 covers the functions, homeostasis, and integration of the organ systems of the human body. Students learn about the organ systems studied including integumentary, nervous, sensory, bone, muscle, endocrine, blood, lymphatic, and immune, cardiovascular, respiratory, urinary, digestive, and reproductive systems. Laboratory activities provide students the opportunity to use scientific methods to predict experimental outcomes, acquire data, analyze it and draw conclusions, and apply concepts learned in both lecture and the laboratory to clinical pathophysiological scenarios. This course is primarily intended for Nursing, Kinesiology, and other health related majors. Note: A material/lab fee may be required for this course.</p>
Justification:	Mandatory Revision
Academic Career:	<ul style="list-style-type: none"> Credit
Mode of Delivery:	No value
Author:	<ul style="list-style-type: none"> Karoline Rostamiani
Course Family:	No value

Academic Senate Discipline

Primary Discipline:	<ul style="list-style-type: none"> Biological Sciences
Alternate Discipline:	No value
Alternate Discipline:	No value

Course Development

Basic Skill Status (CB08)

Course is not a basic skills course.

Allow Students to Gain Credit by Exam/Challenge

Course Special Class Status (CB13)

Course is not a special class.

Pre-Collegiate Level (CB21)

Not applicable.

Grading Basis

- Grade with Pass / No-Pass Option

Course Support Course Status (CB26)

Course is not a support course

General Education and C-ID

General Education Status (CB25)

Not Applicable

Transferability

Transferable to both UC and CSU

Transferability Status

Approved

Cal-GETC

Area 5B: Biological Science

Area

Biological Science

Status

Approved

Approval Date

09/02/2025

Comparable Course

No Comparable Course defined.

Area 5C: Laboratory

Laboratory

Approved

09/02/2025

GCC General Education Requirements

Area 5: Natural Sciences

Area

Natural Sciences

Status

Approved

Approval Date

09/02/2025

Comparable Course

No Comparable Course defined.

C-ID

BIOL

Area

Biology

Status

Approved

Approval Date

02/17/2015

Comparable Course

BIOL 120 B - Human Physiology with Lab

Units and Hours

Summary

Minimum Credit Units (CB07)	4
Maximum Credit Units (CB06)	4
Total Course In-Class (Contact) Hours	108
Total Course Out-of-Class Hours	108
Total Student Learning Hours	216

Credit / Non-Credit Options

Course Type (CB04)

Credit - Degree Applicable

Noncredit Course Category (CB22)

Credit Course.

Noncredit Special Characteristics

No Value

Course Classification Code (CB11)

Credit Course.

Variable Credit Course

Funding Agency Category (CB23)

Not Applicable.

Cooperative Work Experience Education Status (CB10)

Weekly Student Hours

	In Class	Out of Class
Lecture Hours	3	6
Laboratory Hours	3	0
Studio Hours	0	0

Course Student Hours

Course Duration (Weeks)	18
Hours per unit divisor	0
Course In-Class (Contact) Hours	
Lecture	54
Laboratory	54
Studio	0
Total	108
Course Out-of-Class Hours	
Lecture	108
Laboratory	0
Studio	0
Total	108

Time Commitment Notes for Students

No value

Units and Hours - Weekly Specialty Hours

Activity Name	Type	In Class	Out of Class
No Value	No Value	No Value	No Value

Prerequisites, Corequisites, Recommended Corequisites, and Recommended Preparation

Prerequisite

BIOL120 - Human Anatomy (in-development)

Objectives

- Identify major structures in the 11 systems of the human body.
- Identify the basic features of cells and their organization as tissues.
- Identify the four major tissue types.

- Identify subtypes of tissues within each major tissue type (e.g., areolar connective tissue, cardiac muscle, simple vs. stratified epithelium).
- Identify the location and function of subtypes of tissues in various organ systems.
- Describe the structure-function relationship of each organ system (e.g., the nephron and its role in the kidney).
- Demonstrate proper use of a microscope to identify major tissue types in histological slides.
- Identify all major bones and bone markings using human bones and models.
- Identify all major muscles (including knowledge of origin, insertion, and action) using anatomical models.
- Identify all of the major structures of organ systems using models and tissue slides.
- Identify major organs and structures in a human cadaver.
- Demonstrate proper dissection techniques for organs (e.g., cow eye, sheep brain).

AND**Prerequisite**

CHEM101 - General Chemistry A (in-development)

Objectives

- Evaluate past and present atomic theories with respect to experimental observations.
- Describe chemical processes in terms of chemical equations and be able to use the equations to answer quantitative questions concerning the process described.
- Describe the relationship between matter and energy and the inter-conversion of the two.
- Analyze modern theories of atomic motion, especially as they apply to gases.
- Utilize bonding theories to describe the chemical nature of ions and molecules.
- Demonstrate the proper use of laboratory equipment and the ability to handle chemicals safely.
- Describe the scientific method and apply it to the development of the science of chemistry.
- Demonstrate an understanding of intermolecular forces and apply those forces to the nature of solids and liquids.

OR**Prerequisite**

CHEM110 - Elements Of General Chemistry (in-development)

Objectives

- Use dimensional analysis to solve quantitative problems and check answers to make sure they are physically reasonable as applied to areas such as unit conversions, stoichiometry, and gas laws, for example.
- Clearly explain qualitative chemical concepts and trends.
- Perform laboratory experiments correctly using appropriate techniques and safety procedures.

OR**Prerequisite**

CHEM120 - Fundamentals Of College Chemistry (Inorganic) (in-development)

Objectives

- Analyze supposed scientific reasoning as logical or not.
- Evaluate scientific statements and develop an opinion as to their validity.

AND**Advisory**

ENGLC1000 - Academic Reading and Writing

Objectives

- Read analytically to understand and respond to diverse academic texts.
- Compose thesis-driven academic writing that demonstrates analysis and synthesis of sources as appropriate to the rhetorical situation.
- Demonstrate strategies for planning, outlining, drafting, revising, editing, and proofreading written work.
- Write timed, in-class essays exhibiting acceptable college-level control of mechanics, organization, development, and coherence.
- Integrate the ideas of others through paraphrasing, summarizing, and quoting without plagiarism.

OR**Advisory**

ENGLC1000E - Academic Reading and Writing

Objectives

- Read analytically to understand and respond to diverse academic texts.
- Compose thesis-driven academic writing that demonstrates analysis and synthesis of sources as appropriate to the rhetorical situation.
- Demonstrate strategies for planning, outlining, drafting, revising, editing, and proofreading written work.
- Write timed, in-class essays exhibiting acceptable college-level control of mechanics, organization, development, and coherence.
- Integrate the ideas of others through paraphrasing, summarizing, and quoting without plagiarism.

OR

Advisory

ENGLC1000H - Academic Reading and Writing - Honors

Objectives

- Read analytically to understand and respond to diverse academic texts.
- Compose thesis-driven academic writing that demonstrates analysis and synthesis of sources as appropriate to the rhetorical situation.
- Demonstrate strategies for planning, outlining, drafting, revising, editing, and proofreading written work.
- Write timed, in-class essays exhibiting acceptable college-level control of mechanics, organization, development, and coherence.
- Integrate the ideas of others through paraphrasing, summarizing, and quoting without plagiarism.

Entry Standards

Entry Standards	Description
No value	No value

Course Limitations

Cross Listed or Equivalent Course	Description
No value	No value

Specifications

Methods of Instruction

Methods of Instruction	Lecture
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Methods of Instruction	Discussion
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Methods of Instruction	Laboratory
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Methods of Instruction	Multimedia			
Methods of Instruction	Collaborative Learning			
Methods of Instruction	Demonstrations			
Methods of Instruction	Presentations			
Out of Class Assignments				
<ul style="list-style-type: none"> Laboratory reports (e.g., electrocardiogram analysis) Pre-lab exercises (e.g., written protocol for experimental laboratory procedures) 				
Methods of Evaluation	Rationale			
Report	Laboratory reports			
Exam/Quiz/Test	Laboratory quizzes			
Exam/Quiz/Test	Lecture exams including essay questions			
Exam/Quiz/Test	Final exam including essay questions			
Textbook Rationale				
No Value				
Textbooks				
Author	Title	Publisher	Date	ISBN
Stuart Fox, Krista Rompolski	Human Physiology	McGraw-Hill	2021	978-1260597660
Other Instructional Materials (i.e. OER, handouts)				
Description	Biology 121 Introduction to Human Physiology Laboratory Manual.			
Author	GCC Biology Division, 2022			
Citation	No value			
Online Resource(s)	No value			

Learning Outcomes

Course Objectives

Describe the chemistry and biology of macromolecules important to homeostatic physiology.

Identify cellular structures and their functions.

Describe aspects of bioenergetics and metabolism important to homeostatic physiology.

Describe the mechanics of gene expression, genetic inheritance, and selected genetic disorders.

Identify the role of enzymes in energy production and disease processes.

Describe cell transport and communication mechanisms and their role in disease processes.

Describe the relationship between structure and function in the human nervous system, and its disorders.

Describe the relationship between structure and function of sensory systems in the human body.

Identify human hormone functions, mechanisms of action, and endocrine disorders.

Describe the relationship between structure and function in the human musculoskeletal system.

Describe the properties of human blood and lymphatic systems, as well as immune system function and its disorders.

Describe the relationship between structure and function of the human cardiovascular system, and its disorders.

Describe the relationship between structure and function of the human respiratory system, and its disorders.

Describe the relationship between structure and function of the human urinary system, and its disorders.

Describe the relationship between structure and function of the human digestive system, and its disorders.

Describe the relationship between structure and function of the human reproductive system, and its disorders.

SLOs

Demonstrate an understanding of the scientific method by conducting physiological experiments and applying the obtained data to physiological principles of the human body. Expected Outcome Performance: 70.0

<i>ILOs</i> Core ILOs	Analyze and solve problems using critical, logical, and creative thinking; ask questions, pursue a line of inquiry, and derive conclusions; cultivate creativity that leads to innovative ideas.
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<i>BIOL</i> Health Science - A.S. Degree Major	Be well-prepared for courses in the health science professions Identify anatomical structures and describe the functions of important systems in the human body
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<i>BIOL</i> Health Science AS Degree	Be well-prepared for courses in the health science professions Identify anatomical structures and describe the functions of important systems in the human body
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<i>NS</i> Registered Nursing - A.S. Degree Major	Complete the nursing program with requisite knowledge of the discipline including clinical evidenced-based practice within a required time frame. Demonstrate requisite knowledge of the profession of registered nursing by successfully passing the NCLEX-RN Board Exam.
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<i>SOC</i> Social Work and Human Services AA-T Degree	Explain the qualities and characteristics of effective human service professionals who view clients as whole persons in the context of their family, culture, and community using a biopsychosocial perspective.
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<i>KIN</i> Kinesiology - AA-T	Recognize and understand the functions of human body systems
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<i>ILOs</i> General Education	apply reasoning to evaluate hypotheses and theories examine causality or associations between or among variables of the natural world
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Explain the role of biochemical mechanisms in the normal physiology of the human body systems, as well as in selected pathophysiological conditions. Expected Outcome Performance: 70.0

<i>ILOs</i> Core ILOs	Analyze and solve problems using critical, logical, and creative thinking; ask questions, pursue a line of inquiry, and derive conclusions; cultivate creativity that leads to innovative ideas.
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<i>BIOL</i> Health Science - A.S. Degree Major	Be well-prepared for courses in the health science professions Identify anatomical structures and describe the functions of important systems in the human body
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<i>BIOL</i> Health Science AS Degree	Be well-prepared for courses in the health science professions Identify anatomical structures and describe the functions of important systems in the human body
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<i>NS</i> Registered Nursing - A.S. Degree Major	Complete the nursing program with requisite knowledge of the discipline including clinical evidenced-based practice within a required time frame. Demonstrate requisite knowledge of the profession of registered nursing by successfully passing the NCLEX-RN Board Exam.
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<i>SOC</i> Social Work and Human Services AA-T Degree	Explain the qualities and characteristics of effective human service professionals who view clients as whole persons in the context of their family, culture, and community using a biopsychosocial perspective.
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<i>KIN</i> Kinesiology - AA-T	Recognize and understand the functions of human body systems
<i>ILOs</i> General Education	apply reasoning to evaluate hypotheses and theories
	examine causality or associations between or among variables of the natural world

Course Content

Lecture Content

Cell Structures and Functions (1.5 hours)

- Cell organelles
- Plasma membrane

Important Biological Molecules (1.5 hours)

- The role of acids, bases and salts
- The role of organic compounds
- Chemical reactions

Genetic Control of the Cell (6.5 hours)

- DNA structure and replication
- Transcription
- Protein synthesis
- Restriction enzyme DNA fingerprinting
- Clinical manifestations of genetic disorders

Cell Division (1.5 hours)

- The cell cycle
- Mitosis and meiosis
- Spermatogenesis and oogenesis

Cell Respiration and Metabolism (3 hours)

- Enzymes
- Biochemical pathways of energy production
- Diagnostic value of plasma enzymes to detect disease
- Analysis of factors affecting enzyme function

Cell Membrane Transport Mechanisms (4 hours)

- Diffusion and Osmosis
- Solutions
- Carrier-mediated transport
- Bulk Transport
- Cell junctions and cell to cell communication
- Fluid compartments

Tissues, Organs, and Organ Systems (1 hour)

- Epithelial tissue
- Connective tissue
- Muscle tissue
- Nervous tissue
- Organs
- Skeletal system
- Nervous system
- Muscular system
- Integumentary system
- Cardiovascular system
- Lymphatic system
- Urinary system
- Reproductive system
- Respiratory system
- Digestive system

The Integumentary System (1 hour)

- Skin
- Hair
- Nail

The Nervous System (6 hours)

- Neurons and neuroglia cells
- Membrane potentials
- Action and graded potential
- Conduction of nerve impulses
- Synapses and neurotransmitters
- The central nervous system
- The autonomic nervous system
- Clinical implications of neurodegenerative diseases
- Clinical reflex testing to understand neuropathology

Sensory System (4 hours)

- Sensory receptors
- Cutaneous sensations
- Taste and olfaction
- Vestibular apparatus and equilibrium
- Hearing
- Vision
- Clinical assessment of hearing, nystagmus, and vision

Bone and Muscle System (3 hours)

- Bone deposition, resorption, and calcium homeostasis
- Structure and function of the different muscle cells
- Sliding filament theory of muscle contraction
- Contractions of skeletal muscles
- Energy requirements of skeletal muscle
- Neural control of skeletal muscle
- Neuromuscular diseases
- Factors that affect muscle contraction
- Analysis of electromyography using the Biopac system

Endocrine System (3 hours)

- Hypothalamic hormones
- Anterior and posterior pituitary hormones
- Adrenal gland hormones
- Thyroid and parathyroid gland hormones
- Pancreatic hormones
- Pineal gland hormone
- Gastrointestinal tract hormones
- Gonadal and placental hormones
- Mechanisms of hormone action
- Steroid hormone mechanism of action
- Thyroid hormone mechanism of action
- Cyclic AMP second-messenger mechanism of action
- Phospholipase C-calcium second-messenger of action
- Tyrosine kinase second messenger of action
- Negative feedback mechanisms
- Disorders of the Endocrine system

Blood, Lymphatic and Immune System (3 hours)

- The function of blood cells
- Hematopoiesis
- Red blood cell antigens, blood typing, and transfusions
- Blood clotting
- The structure and function of the lymphatic system
- Innate or nonspecific immunity
- Adaptive or specific immunity
- Active and passive immunity
- Blood and Immune diseases
- Blood type and the genetics of blood type determination
- Enzyme-linked immunosorbent assay lab exercise

The Cardiovascular System (3 hours)

- The structure and function of the heart
- Heart sounds
- Heart murmurs
- The cardiac cycle
- The conduction system of the heart
- The electrical activity of the heart and the electrocardiogram
- The structure and function of the vascular components
- Pulmonary and systemic circulation
- Cardiac Output
- Factors regulating heart rate
- Factors regulating stroke volume
- Intrinsic and extrinsic control of heart contraction strength
- The factors affecting the venous return of blood to the heart
- Integration of other systems with the cardiovascular system
- The role of the cardiovascular system in thermoregulation
- Pathologies of the cardiovascular system
- Factors that affect heart rate, blood pressure, and the Electrocardiogram using the Biopac system.

The Respiratory System (3 hours)

- The structures and functions of the respiratory system
- Physical aspects of Ventilation
- Mechanics of breathing
- External respiration
- Transport of the gases in the blood
- Internal respiration
- Pulmonary function tests
- Control of respiration
- Pulmonary disorders
- Acid-Base balance of the blood
- Spirometry lab exercise using the Biopac system; implications for lung disease

The Urinary System (3 hours)

- The structures and functions of the urinary system
- Microscopic structure of the kidney
- Glomerular filtration
- Reabsorption
- The countercurrent multiplier system
- Hormonal control of reabsorption
- Secretion
- Renal control of water, electrolyte, and acid-base balance
- The role of the kidney in homeostasis
- Control of micturition
- Diuretics
- The effect of diuretics on the cardiovascular system
- Disorders of the urinary system
- Analysis of constituents of urine and determination of pathological conditions

The Digestive System (3 hours)

- Layers of the gastrointestinal tract
- Salivary glands and digestion in the mouth
- Structure and function of the pharynx and esophagus
- Structure and digestion in the stomach
- Structure and digestion in the small intestine
- The role of the liver, gallbladder and pancreas in digestion
- Structure and function of the large intestine
- Regulation of the digestive system
- Absorption of Food
- Vitamins
- Disorders of the digestive system
- Data analysis on digestion of various macromolecules

The Reproductive System (3 hours)

- The structure and function of the male reproductive system
- The structure and function of the female reproductive system
- the ovarian cycle

- the menstrual cycle
- Fertilization, pregnancy, parturition, and lactation
- Embryonic sexual development
- Disorders of the reproductive system

Total hours: 54

Laboratory/Studio Content

The Scientific Method and the Metric System (3 hours)

- Units of measurement
- Scientific notation
- Hypothesis development

Genetic Control of the Cell (6 hours)

- DNA structure and replication
- Transcription
- Protein synthesis
- Restriction enzyme DNA fingerprinting
- Clinical manifestations of genetic disorders

Cell Division (3 hours)

- The cell cycle
- Mitosis and meiosis
- Spermatogenesis and oogenesis

Cell Respiration and Metabolism (3 hours)

- Enzymes
- Biochemical pathways of energy production
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- Analysis of factors affecting enzyme function

Cell Membrane Transport Mechanisms (3 hours)

- Diffusion and Osmosis
- Solutions
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- Bulk Transport
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- Fluid compartments

The Nervous System (4 hours)

- Neurons and neuroglia cells
- Membrane potentials
- Action and graded potential
- Conduction of nerve impulses
- Synapses and neurotransmitters
- The central nervous system
- The autonomic nervous system
- Clinical implications of neurodegenerative diseases
- Clinical reflex testing to understand neuropathology

Sensory System (4 hours)

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- Blood and Immune diseases
- Blood type and the genetics of blood type determination
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The Cardiovascular System (4 hours)

- The structure and function of the heart
- Heart sounds
- Heart murmurs
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- Pulmonary and systemic circulation
- Cardiac Output
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- Structure and function of the large intestine
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- Absorption of Food
- Vitamins
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- Data analysis on digestion of various macromolecules

Total hours: 54**Additional Information****Repeatability**

Not Repeatable

Justification (if repeatable was chosen above)

No Value

Is it possible this course will have a material fee?

Yes

I have contacted my library liaison (<https://campusguides.glendale.edu/faculty/liasons>):

No

What term(s) will this course be offered?

Fall/Winter/Spring/Summer

Will any additional resources be needed for this course? (Click all that apply)

- No

If additional resources are needed, add a brief description and cost in the box provided.

No Value