



North Central State College
MASTER SYLLABUS
2020-2021

- A. Academic Division: Health Sciences
- B. Discipline: Science
- C. Course Number and Title: BIOL2751 Human Anatomy & Physiology I
- D. Course Coordinator: Jeff Taylor, MS
Assistant Dean: Melinda Roepke, MSN, RN

Instructor Information:

- Name: [Click here to enter text.](#)
- Office Location: [Click here to enter text.](#)
- Office Hours: [Click here to enter text.](#)
- Phone Number: [Click here to enter text.](#)
- E-Mail Address [Click here to enter text.](#)

- E. Credit Hours: 4
Lecture: 3 hours
Laboratory: 3 hours
- F. Prerequisites: High school chemistry with minimum C minus (C-) grade or CHEM1010 with minimum C minus (C-) grade; AND ENGL0040, MATH0084 (Minimum grade of C- for all) or qualifying placement test score. If the student has completed BIO121 and BIO122 OR BIOL1730 with a minimum grade of C, then the student is not required to have high school Chemistry or CHEM 1010
- G. Syllabus Effective Date: Fall, 2020
- H. Textbook(s) Title:
Visual Anatomy and Physiology
 - Author: Martini
 - Copyright Year: 2015
 - Edition: 2nd
 - ISBN #: 9780321918949
- I. Workbook(s) and/or Lab Manual:
Atlas of the Human Body
 - Authors: Martini
 - Copyright Year: 2015
 - Edition: 10th
 - ISBN #: 9780321940728

The Anatomy Coloring Book

- Authors: Kapit and Elson
- Copyright Year: 2002
- Edition: 3rd
- ISBN #: 9780133926989

Pocket Anatomy & Physiology

- Author: Jones
- Copyright Year: 2009
- Edition: N/A
- ISBN #: 9780803632813

Interactive Physiology 10-system (OPTIONAL)

- Author:
- Copyright Year: 2009
- Edition: N/A
- ISBN #: 9780805361179

J. Course Description: This course is an in-depth study of the principles of human anatomy and physiology. It includes the study of structure and function of the body as a whole and study of cell biology, histology, the integumentary, skeletal, muscular, endocrine, and nervous systems plus the special senses. Laboratory exercises are designed to supplement lecture topics and include microscopy, the study of models, cat and specimen dissection, cadaver study, and physiological experiments. (OTM approved course in Natural Sciences TMNS)

K. College-Wide Learning Outcomes

College-Wide Learning Outcomes	Assessments - - How it is met & When it is met
Communication – Written	
Communication – Speech	
Intercultural Knowledge and Competence	
Critical Thinking	Given a homeostatic imbalance, predict the physiological responses (all body systems throughout the semester).
Information Literacy	Accessing course quizzes, tutorials, audio presentations and grades in Blackboard and faculty websites (throughout the semester).
Quantitative Literacy	Determination of alteration of cell membrane potentials (completion of the muscular and nervous systems).

L. Course Outcomes and Assessment Methods:

Upon successful completion of this course, the student shall:

Outcomes	Assessments – How it is met & When it is met
1. Describe the body planes and organization and apply these to appropriate models, drawings, and specimens.	Exams, quizzes, practical lab tests throughout the semester
2. Explain the basic concept of homeostasis.	Exams, quizzes, practical lab tests throughout the semester
3. Identify selected cell structures and explain their respective functions.	Exams, quizzes, practical lab tests throughout the semester
4. Summarize the steps of cell division and protein synthesis.	Exams, quizzes, practical lab tests throughout the semester

Outcomes	Assessments – How it is met & When it is met
5. Describe, locate, and identify the basic tissues of the body and explain their functions.	Exams, quizzes, practical lab tests throughout the semester
6. Identify the organs of the integumentary system and describe the functions of the system.	Exams, quizzes, practical lab tests throughout the semester
7. Identify and describe the major microscopic and macroscopic anatomical components of the skeletal system, osteogenesis, repair, and functional contributions to movement.	Exams, quizzes, practical lab tests throughout the semester
8. Identify and describe the major microscopic and macroscopic anatomical components of the muscular system and explain their functional roles in body movement.	Exams, quizzes, practical lab tests throughout the semester
9. Identify and describe the major microscopic and macroscopic anatomical components of the endocrine system and explain their functional roles in communication, cellular control and integration.	Exams, quizzes, practical lab tests throughout the semester
10. Identify and describe the major microscopic and macroscopic anatomical components of the nervous system and explain their functional roles in communication control, and integration.	Exams, quizzes, practical lab tests throughout the semester
11. Identify and describe the major microscopic and macroscopic anatomical components of the eye and ear and explain their functional roles in vision and hearing.	Exams, quizzes, practical lab tests throughout the semester

M. Topical Timeline (Subject to Change):

LECTURE:

1. Introduction
 - a. Life and its maintenance
 - 1) Homeostasis
 - 2) Characteristics
 - 3) Levels of organization
 - b. Anatomical terminology and reference systems
 - c. Chemistry, matter, and life
2. The Cell
 - a. Introduction to cellular concept
 - b. A composite cell
 - c. Movements through cell membranes
 - d. Nucleic acids and protein synthesis
 - e. Life cycle of a cell
 - f. Metabolic processes
3. Cells Working Together - Tissues
 - a. Tissue groups
 - b. Tissue transplantation
4. The Integument (Skin)
 - a. Skin functions
 - b. Skin layers and appendages
 - c. Response to injuries
5. The Skeletal System
 - a. Functions
 - b. Organization

- c. Bone structure and development
- 6. The Articular System
 - a. Types of joints and their movements
 - b. Disorders of joints
- 7. The Muscular System
 - a. Purposes
 - b. Special characteristics and structure
 - c. Skeletal muscle contraction
 - d. Other muscle types
 - e. Actions and naming of muscles
- 8. The Endocrine System
 - a. Basic Endocrine Functions
 - b. Hormones secreted by the pituitary, thyroid, parathyroid, adrenal, pancreatic, G.I. and reproductive glands.
 - c. The effects of each of the hormones
 - d. Control mechanisms for each hormone secretion
 - e. Conditions of clinical significance
 - f. Other Endocrine Tissues and Hormones (Pineal body and thymus gland)
 - g. Prostaglandins
- 9. The Nervous System
 - a. Introduction
 - b. Divisions of organization
 - c. Cells and tissues of the nervous system
 - d. Physiology of the neuron and synapse
 - e. Neuron receptors
 - f. The spinal cord and reflex arcs
 - g. Anatomy and function of the brain and related structures
 - h. The peripheral nervous system
 - 1) Somatic
 - 2) Autonomic
- 10. Special Senses
 - a. The Eye
 - 1) Structures of the eye and their functions
 - 2) Physics of vision
 - 3) Vision disorders
 - b. The Ear
 - 1) Structures of the ear
 - 2) Mechanism of hearing
 - c. Smell
 - d. Taste

LABORATORY EXERCISES:

1. Introduction to the lab and the human body
2. Basic microscope
3. Cell structure
4. Membrane transport
5. Mitosis
6. Tissues
7. The skin
8. The skeleton (skull)
9. Thoracic and vertebral skeleton
10. Skeleton of upper appendage
11. Skeleton of lower appendage
12. Muscles of hind limb

13. Muscles of neck, chest and abdomen
14. Muscles of back and shoulder
15. Muscles of arm
16. Physiology of muscle
17. Endocrine gland structure and hormone function
18. Human brain and sheep brain external anatomy
19. Human brain and sheep brain internal anatomy
20. Neuron cell structure and spinal cord
21. Reflex action and nervous control
22. Major Somatic nerves
23. Eye
24. Ear

N. Course Assignments:

1. Assignments as dictated by instructor
2. Lecture exams
3. Laboratory practical exams
4. Completion of pre-laboratory worksheets

O. Recommended Grading Scale:

NUMERIC	GRADE	POINTS	DEFINITION
93-100	A	4.00	Superior
90-92	A-	3.67	Superior
87-89	B+	3.33	Above Average
83-86	B	3.00	Above Average
80-82	B-	2.67	Above Average
77-79	C+	2.33	Average
73-76	C	2.00	Average
70-72	C-	1.67	Below Average
67-69	D+	1.33	Below Average
63-66	D	1.00	Below Average
60-62	D-	0.67	Poor
00-59	F	0.00	Failure

P. Grading and Testing Guidelines:

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Q. Examination Policy:

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R. Class Attendance and Homework Make-Up Policy:

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S. Classroom Expectations:

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T. College Procedures/Policies:

Important information regarding College Procedures and Policies can be found on the [syllabus supplement](#) located at

<http://catalog.ncstatecollege.edu/mime/download.pdf?catoid=5&ftype=2&foid=3>