BI 122 Anatomy and Function II
4 Credits
College Now/CTE
Student Outcome Checklist
cocc.edu/departments/college-now

Student's Name_____

Student's Signature_____ Completion Date _____

High School Teacher's Signature _____

Recommended Letter Grade _____High School _____

COCC Review Instructor's Signature _____

COURSE DESCRIPTION: Covers the nervous system, eyes, ears, reproduction, genetics, digestion, urinary system, hormones and diabetes. Designed for pharmacy technician, medical assisting and massage therapy programs. Lecture and lab are taken simultaneously; not offered as separate classes. Preserved animal tissues are used in some labs. Recommended preparation: BI 121

BI 121 and BI 122 are NOT courses approved for the AAOT, AS, AAS or AGS degrees offered by COCC, and cannot be used as science courses to meet the General Education Discipline Studies requirement. BI 121 and BI 122 are designed for massage therapy, medical assisting and pharmacy technician certificate programs, but can be applied towards a massage therapy AAS degree.

RECOMMENDED TEXT: *Understanding Human Anatomy and Physiology* (5th ed) by Sylvia Mader. (Other texts must be approved by COCC review instructor Emma Chaput, 541-383-7291, echaput@cocc.edu.) Lab Guides may be obtained from COCC review instructors, or an approved lab book may be used.

TEACHER REQUIREMENTS: High school teachers will meet with COCC instructor, Emma Chaput, to review the course objectives, sample problems and testing procedures. In addition, high school teachers will complete the teacher approval process and have a current articulation agreement with COCC prior to registering students.

COURSE OUTCOMES: Upon completion of the Anatomy and Function II, students will be able to:

1. Demonstrate a fundamental understanding of human anatomy and physiology with an emphasis on nervous, sensory, reproductive, digestive, urinary, and endocrine systems.
2. Demonstrate an understanding of relationships within and between organ systems.
3. Develop a continuing curiosity about the human body, and an ability to apply scientific tools to lifelong exploration and learning.
4. Make connections between anatomy and physiology knowledge and diseases.

ADDITIONAL LEARNING GOALS

1. Gather, comprehend, and communicate scientific and technical information in order to explore ideas, models and solutions and generate further questions;
2. Apply scientific and technical modes of inquiry, individually, and collaboratively, to critically evaluate existing or alternative explanations, solve problems, and make evidence-based decisions in an ethical manner; and
3. Assess the strengths and weaknesses of scientific studies and critically examine the influence of scientific and technical knowledge on human society and the environment.

EXAMS: Contact College Now Office at CollegeNow@cocc.edu or 541.504.2930. If using these specific exams or questions for your course, please be certain not to allow students to keep them or to make copies. Use them only in the classroom, under supervision.

GRADING: A, A-, B+, B, B-, C+, C, D, F.
See College Now Grading Policy.

GRADING SCALE:

A	= 93-100%	C+	= 78-79%
A-	= 90-92%	C	= 70-77%
B+	= 88-89%	D	= 60-69%
B	= 83-87%	F	= 59% and below
B-	= 80-82%		

SUGGESTED **GRADE CALCULATIONS**:

75% of grade (300 points) from three 100 point lecture exams.
Final lecture exam should have a strong emphasis on the material covered since the previous exam, but with a cumulative component.

25% of grade (100 points) from lab quizzes and lab exercises.
Three practical quizzes, each worth 25 points, with a total score of 75 points.
Graded lab exercises, with a total score of 25 points.

Additional points may be added to the total by incorporating graded assignments.
Extra Credit: There may be extra credit assignments during the term, worth no more than 20 points total.

COURSE COMPLETION: The high school teacher will send the following documents to: College Now Office, Central Oregon Community College, 2600 NW College Way, Bend, OR 97703.

1. A completed and signed final grade roster for the course.
2. A completed and signed copy of the Student Outcome Checklist pages 1 and 3.

BI 122 Anatomy and Function II
***Suggested* Final Grade Computation**

400 POINTS POSSIBLE.

- 300 points from three 100 point lecture exams
- 100 points from lab quizzes and lab exercises
- 20 points maximum from extra credit assignments

EXAMS (300 Pts)	POINTS		WEIGHT		POINTS
Exam #1	_____	x	25%	=	_____
Exam #2	_____	x	25%	=	_____
Exam #3	_____	x	25%	=	_____
QUIZZES AND LAB (100 Pts)	_____	x	25%	=	_____
EXTRA CREDIT ASSIGNMENTS (20 points max)				=	_____
Total Points:					_____
Recommended Letter Grade:					_____

_____ _____
High School Teacher Signature Date

Specific Learning Outcomes *and* *Suggested* Time Allotments Per System:

The Nervous System Lec: 4.5 hours/Lab: 4.5 hours

- Describe the nervous system's organization.
- Describe neurons and impulses. Understand depolarization and repolarization.
- Describe myelin and its functions. Compare and contrast gray and white matter.
- Identify cerebral lobes and the central sulcus and lateral fissure.
- Compare right and left hemisphere specializations.
- Identify the corpus callosum between the hemispheres and explain its role.
- Identify and describe the functions of different areas of the cortex.
- Understand the location and function of basal nuclei, and 2 pathologies associated with them: Parkinson's disease and Huntington's disease.
- Identify the ventricles. Trace the circulation of cerebrospinal fluid, and understand what hydrocephalus is..
- Describe the location and functions of the hypothalamus, the brainstem, and cerebellum.
- Know that there are 3 meningeal layers around the CNS.
- Understand the relationship between the meninges and CSF, and how and why lumbar punctures are performed.
- Understand hemiplegia, paraplegia and quadraplegia.
- Compare and contrast sympathetic and parasympathetic divisions of the Autonomic Nervous System (ANS).

The Eye and the Visual System Lec: 1.5 hours/Lab: 2 hours

- Describe external eye structures, including extrinsic muscles, lacrimal glands, nasolacrimal duct and conjunctiva.
- Describe the cornea and the circulation of aqueous humor. Explain the pathology of glaucoma.
- Describe the iris and its control by the sympathetic and parasympathetic divisions.
- Describe accommodation by the lens. Explain the pathology of cataracts.
- Describe the vitreous humor, retina and choroids.
- Compare and contrast rods and cones. Identify the retina's fovea centralis, macula lutea and optic disk.
- Understand the pathology of red-green color blindness, and macular degeneration.
- Explain how binocular vision provides depth perception.

The Ears and the Auditory and Vestibular Systems Lec: 1.5 hours/Lab: 2 hours

- Describe the outer and middle ears, including how vibrations are transmitted through them. Explain the pathology of otitis media and conductive deafness.
- Describe how vibrations are converted to impulses in the cochlea.
- Define static equilibrium and how it is sensed in the otolith organs.
- Define dynamic equilibrium and how it is sensed in semicircular canals.

The Reproductive Systems Lec: 6.5 hours/Lab: 4 hours

- Describe the male reproductive tract and semen production. Describe sperm anatomy.
- Explain the pathology of prostate hyperplasia.
- Recognize that the female gender is the basic gender in mammals, and that males are females modified by testosterone.

- Describe the female reproductive system.
- Describe egg maturation and ovulation, and the hormones responsible.
- Define menopause.
- Describe the roles of fallopian tubes, uterus and cervix. Describe the uterine cycle including the hormones responsible.
- Describe the vagina and external genitalia, and their roles in preventing infection of the female tract.
- Discuss breast cancer.
- Describe the major sexually transmitted diseases (STDs).

Development Lec: 1 hour

- Understand the genetic differences between fraternal twins and identical twins.
- Describe the three trimesters of development. Explain the pathology of neural tube defects.
- Describe embryonic membranes and the placenta.
- Describe the stages of parturition.
- Define lactation, and state the hormones involved.

Genetics Lec**:** 2 hours

- Define homologous chromosomes, dominant, recessive, genotype, phenotype, homozygous, heterozygous, allele.
- Use Punnett squares to calculate phenotype probabilities for characteristics like hair color, and for sex determination.
- Understand the genetics and pathology of recessive genetic disorders, including cystic fibrosis (and other examples).
- Understand the genetics and pathology of dominant genetic disorders, including Huntington's disease.
- Understand the genetics and pathology of X chromosome-linked genetic disorders, including hemophilia.
- Understand the chromosomal pathologies of Down's syndrome, Turner's syndrome, and Klinefelter's syndrome.
- Understand why inbreeding increases the risk of recessive disorders.

The Digestive System Lec: 2.5 hours/Lab 2 hours

- Describe the mouth's anatomy, including salivary glands, and the events of swallowing down to the stomach. Explain the pathology of heartburn and how to differentiate it from heart attack.
- Identify the parts of the stomach, and explain its functions including production of intrinsic factor.
- Explain the pathology of ulcers, including the role of the bacterium, *H. pylori.*
- Identify the parts of the small intestine, and explain its functions.
- Describe how villi and microvilli increase its surface. Explain the pathology of Crohn's disease.
- Identify the parts of the large intestine, and explain its functions.
- Explain diarrhea and constipation. Describe the defecation reflex.
- State the benefits of normal intestinal flora.
- Describe the pancreas and its functions. Explain why pancreatitis is so dangerous.
- List the functions of the liver. Explain the signs and symptoms of liver disease, including jaundice and ascites. Define hepatitis and cirrhosis.
- Describe the gallbladder's function. Explain the pathology of gallstones.
- Understand the pathology of appendicitis, diverticulosis, hiatial hernia, hemorrhoids, lactose intolerance, and celiac disease.

The Urinary System Lec: 3 hours/Lab: 2 hours

- List the functions of the kidneys. Explain what causes death from kidney failure.
- Describe filtration, re-absorption and secretion.
- Trace the route of urine through the kidneys and then out of the body.
- Describe the nephron, and explain the functions of its parts.
- Describe the action of anti-diuretic hormone.
- Describe the signs and symptoms of kidney failure. List causes of kidney failure.
- Describe dialysis.

The Endocrine System Lec: 4.5 hours/Lab: 2 hours

- Describe the chain of command in the endocrine system, and the role of negative feedback.
- Describe the function of growth hormone. Explain the pathology of pituitary dwarfism, gigantism and acromegaly.
- Describe the function of thyroxin. Explain the pathology of iodine deficiency goiter, cretinism, Grave's disease and Hashimoto's thyroiditis.
- Describe the functions of cortisol. Explain the pathology of Cushing's disease.
- Describe the function of insulin. Explain the pathology of Type 1 and Type 2 diabetes mellitus. List the signs and symptoms of diabetes.
- Compare insulin shock and diabetic coma.