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| | Biology |
| | SBI100 |
| | Mondays 20h00/8 p.m. - 21h00/9 p.m. EST; online |
| | Philippe D'Onofrio, PhD, MSc<br>pdonofrio@ccnm.edu |

and will consist of . Both the midterm test and the final exam are delivered via Examity and invigilated via Zoom by the CCNM.

This course is designed to:

• A core foundation for their knowledge of cellular and molecular biology
• The basis for applying biological concepts to the human body
• Use the relevant vocabulary and concepts correctly in a biological and clinical context
• Acquire an understanding of the known mechanisms by which the cells and organisms function and achieve homeostasis
• Challenge and engage the student where he/she may independently work t enrich their learning.
• Equip students with the necessary knowledge to enter the ND program. Where applicable, apply human biology to Naturopathic principles.

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| Assignments | 15% |
| Quizzes | 10% |
| Midterm exam | 35% |
| Final exam | 40% |

Plagiarism and cheating are academic offenses and will be treated seriously by the College. Students should refer to the College's policies on academic misconduct posted on in the Academic Calendar.

Week Topics Activities Date Resources

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| 7<br>8 | Neurons and the Nervous System | Quizzes 7, 8 | | |

Learning Objectives

After reading the textbook and studying the material in this chapter, the student should be able to:

- Compare prokaryotic and eukaryotic cells.
- Relate the surface-to-

· Differentiate the characteristics of adult, umbilical cord, placental, and embryonic stem cells.
· Describe possible therapeutic uses of stem cells.

Learning Objectives

After reading the textbook and studying the material in this chapter, the student should be able to:
· Develop a table to show the function and location of epithelial, connective, muscle, and nervous tissue.
· Describe the three types of cell junctions.
· Identify the major body cavities and list the organs and systems they house.
· List the four types of membranes, their locations, and their functions.
· Relate the structure of the skin to its ability to carry out the various functions.
· Define homeostasis and explain its importance to life.
· Describe and exemplify a negative feedback system.

Learning Objectives

After reading the textbook and studying the material in this chapter, the student should be able to:
· List the functions of bone.
· Compare the structure of compact and spongy bone.
· Explain the process of bone growth and development, including the influence of hormones.
· Describe how bones heal after a fracture or break.
· Explain what is meant by the continual remodeling of bone.
· List the components of the axial skeleton.
· List the components of the appendicular skeleton.
· Compare the three types of joints in terms of structure and motion.

Learning Objectives

After reading the textbook and studying the material in this chapter, the student should be able to:
· State the four traits common to all muscles.
· Demonstrate and explain the movement of antagonistic muscles.
· Explain muscle contraction at the molecular level of the actin and myosin filaments.

· Differentiate between a single muscle twitch, summation, tetanus, and fatigue.
· List the sources of ATP for muscle contraction and describe in detail where and how the ATP is generated.
· Compare and contrast slow-twitch and fast-twitch muscles, including where they are located in the body and when they are utilized in different physical activities.
· Describe the best way to build muscle endurance and the requirements for building larger muscle mass.

Learning Objectives

After reading the textbook and studying the material in this chapter, the student should be able to:
· Differentiate between a neuron and neuroglial cells.
· Explain the role each of the following plays in the conduction of a nerve impulse: cell body, dendrite, axon, myelin sheath, Schwann cell, and node of Ranvier.
· Describe how a nerve cell maintains a resting potential using the sodium-potassium pump and changes that occur as an action potential moves along the axon.
· Summarize the events that occur at the synapse as an impulse is transmitted from one neuron to the next.

Learning Objectives

After reading the textbook and studying the material in this chapter, the student should be able to:
· Compare the functions of the central and75 Tdse2 (ha.)-2 (al)2.6 (Td( )T2al)2.6 ( and)10.75 Tdshe ha.ialTd( c

· Differentiate between tolerance, cross-tolerance, and physical tolerance.
· List the effects of alcohol on the various body systems, nutrition, cancer, and fetal development.
· Explain the effects of THC and the long-term effects of marijuana on the body.
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Learning Objectives

After reading the textbook and studying the material in this chapter, the student should be able to:

· List the functions of blood.
· Describe the composition of blood and the function of platelets, red blood cells, and each type of white blood cell.
· Explain the cause and treatment of the various types of anemia and leukemia.
· Explain how antibodies and antigens determine blood type and transfusion relationships.
· Sequence the steps leading to a blood clot.

Learning Objectives

After reading the textbook and studying the material in this chapter, the student should be able to:

· List the functions of the cardiovascular system.
· Compare the structure of arteries, veins, and capillaries and explain how the structure facilitates the function of each type of vessel.
· Contrast the exchange of gas in the pulmonary and systemic circuits.
· Describe the internal conduction system of the heart and the resulting cardiac cycle.
· Define blood pressure and differentiate between systolic and diastolic pressure.

Focus on: Cardiovascular Diseases

Learning Objectives

After reading the textbook and studying the material in this chapter, the student should be able to:

· Answer the question: Why is cardiovascular disease important to understand?
· Distinguish between a thrombus and an embolism and explain their dangers and treatment.
· Describe hypertension and atherosclerosis, explain why they are life-threatening, and present treatment ong ttluicbus5.5 (y)-1.9 (ger)-5.9 (s).1.3 (t)-6.6 (he )11.3 (m)-6 (a)10.5 (t)-6.6 (er)4.9 (i)2.6 (al)2.6 ( i)2

Learning Objectives

After reading the textbook and studying the material in this chapter, the student should be able to:
· List the four functions of the respiratory system. List the organs/structures of the respiratory system, and explain their role in gas exchange.
· Explain how inhalation and exhalation are accomplished, including the muscles that are involved and the changes in air pressure.
· Describe how oxygen and carbon dioxide are carried in the blood and exchanged within the tissues.
· Discuss the respiratory control centers in the brain and how the level of blood gases affects breathing rate.
· Identify various disorders of the respiratory system, including their symptoms and treatment.

Learning Objectives

After reading the textbook and studying the material in this chapter, the student should be able to:
· Describe the passage of food through the gastrointestinal tract from the mouth to the anus.
· Explain the function of each organ and accessory organ of the digestive system and describe any specialized structural features.
· Compare neural and hormonal control of digestion and give examples of each.
· Describe a well-balanced diet as represented by MyPlate.
· State the dietary value of lipids, carbohydrates, proteins, vitamins, minerals, and water.
· List the information found on a food label and explain how that information can help you make healthy choices.
· Explain how the body uses energy and what happens to excess food calories.
· Define the Body Mass Index (BMI), explain how it can be used to determine a desirable weight, and then explain the risks of being overweight.
· Describe the characteristics of successful weight-loss programs.
· Compare obesity, anorexia nervosa, and bulimia and explain how they are serious health risks.

Focus on: The Obesity Epidemic

Learning Objectives

After reading the textbook and studying the material in this chapter, the student should be able to:
· Describe obesity, including an explanation of the Body Mass Index (BMI).

· Discuss the health risks of obesity, including possible cardiovascular problems, the incidence and implications of Type 2 Diabetes, and cancer.
· Describe the regulation of food intake as governed by the hypothalamus, hormones, and epigenics.
· Explain the components of weight management and the yo-yo effect of weight loss and gain.