CVT A160: CARDIAC ANATOMY/ PATHOPHYSIOLOGY

Item	Value
Curriculum Committee Approval Date	10/18/2023
Top Code	121500 - Electrocardiography
Units	3 Total Units
Hours	54 Total Hours (Lecture Hours 54)
Total Outside of Class Hours	0
Course Credit Status	Credit: Degree Applicable (D)
Material Fee	No
Basic Skills	Not Basic Skills (N)
Repeatable	No
Open Entry/Open Exit	No
Grading Policy	Standard Letter (S)

Course Description

Cardiac anatomy, physiology, and pathology. Includes cardiovascular structures, hemodynamics, cardiac output and blood pressure, coronary artery disease and myocardial infarction, valvular diseases, infectious diseases, cardiac tumors and myopathies, and congenital heart disease. PREREQUISITE: ALH A111 or concurrent enrollment; and BIOL A221. Transfer Credit: CSU.

Course Level Student Learning Outcome(s)

1. Identify normal and abnormal cardiac structures from printed and dissected examples.
2. Relate structural and hemodynamic changes of the heart to the pathological disease process.

Course Objectives

- I Describe cardiac structures and their location.
- II Identify diagrams and specimens, recognize cardiac structures.
- III Discuss the physiology of myocardial contraction.
- IV Explain hemodynamic principles and the effect of cardiac preload, afterload, and contractility.
- V Recognize hemodynamic waveforms and pressures.
- VI Discuss cardiac output and the factors affecting it.
- VII Perform assessment of heart sounds.
- VIII Recognize normal and abnormal heart sounds and suggest pathologies causing abnormal heart sounds.
- IX Explain the development of the heart in the fetus.
- X Describe the etiologies, manifestations, diagnosis and treatment of the following types of cardiac diseases:
- X. 1. coronary artery disease and myocardial infarction
- X. 2. infectious diseases
- X. 3. cardiomyopathies
- X. 4. congenital diseases
- X. 5. valvular diseases
- X. 6. diseases of the aorta

Lecture Content

1. Course introduction a. Normal cardiac structure and function b. Coronary arteries and veins c. Myocardial cell histology and depolarization/contraction 2. Cardiac chambers and valves a. Heart sounds and murmers b. Cardiac cycle and pressures waveforms 3. Cardiac auscultation a. Physical heart assessment 4. Cardiac imaging and catheterization a. X-ray assessment b. Transthoracic echo c. Transesophageal echo d. Cardiac catherization e. Nuclear imaging f. Computed tomography g. Magnetic resonance imaging 5. Dissection Activity 6. Atherosclerosis a. Coronary circulation b. Coronary artery disease 7. Ischemic heart disease and acute coronary syndrome 8. Valvular heart disease a. Rheumatic fever, infective endocarditis, myocarditis and pericarditis b. Mitral valve regurgitation and stenosis c. Aortic valve regugitation and stenosis d. Tricuspid valve regurgitaiton and stenosis e. Pulmonic valve regurgitation and stenosis f. Prosthetic valves 9. Heart failure 10. Cardiomyopathies a. Dilated cardiomyopathy b. Hypertrophic cardiomyopathy c. Restrictive cardiomyopathy 11. Cardiac Tumors a. Primary tumors b. Secondary tumors 12. Congenital heart disease a. Cardiac development b. ASD and VSD c. Tetralogy of fallot d. Transpostion of the great arteris n bsp; e. Coarctation of the aorta f. Endocardioal cushion defect g. Tricuspid anomalies h. Hypoplastic left heart

Method(s) of Instruction

- Lecture (02)
- DE Live Online Lecture (02S)

Instructional Techniques

Lecture PowerPoint presentations. Demonstrations, i.e. dissection of sheep heart Digital image and video projections

Reading Assignments

Students will spend approximately 2 hours per week reading from assigned course text, cocurse andouts, and other provided materials.

Writing Assignments

Students will spend approximately 2 hours per week on written assignments, including; written study guides to include disease processes, pathology and treatments.

Out-of-class Assignments

Students will spend approximately 2-3 hours per week on out-of-class assignmenst, including assigned reading and written assignments.

Demonstration of Critical Thinking

Pathology case presentations to include class discussion on disease processes and treatement

Required Writing, Problem Solving, Skills Demonstration

Group study guide compilation. Exams and quizzes. Demonstration of correct auscultation.

Eligible Disciplines

Cardiovascular technology: Any bachelor's degree and two years of professional experience, or any associate degree and six years of professional experience.

Textbooks Resources

1. Required Lilly, S., Leonard. Pathophysiology of heart disease, 6 ed. Wolters Kluwer, 2021 Rationale: -