Course Name: RAD- 690 Cross Sectional Anatomy  
Instructor Name: Lindsay Heffernan  
Course Number: RAD - 690  
Course Department: Health Sciences - STEMM  
Course Term: 2019 summer  
Last Revised by Department: 04/2020  
Total Semester Hour(s) Credit: 1  
Total Contact Hours per Semester: 
  
  Lecture: 9   Lab: 0   Clinical: 0   Internship/Practicum: 0

Catalog Description: This is a one semester course that includes the principles and applications of cross-sectional anatomy. The student will explore radiology modalities studying the regions of the body in a transverse, sagittal, or coronal section and will be able to identify the anatomy of that area. This course will help students to gain knowledge of cross-sectional anatomy and will help provide entry-level skills related specifically to radiologic technologist job duties while enhancing their overall knowledge when making important life decisions.

Pre-requisites and/or Co-requisites: RAD-210 Clinical Education 1; RAD-122 Radiographic Procedures 1; RAD-320 Imaging I; RAD-365 Imaging 2; RAD-142 Radiographic Procedures 2; RAD-230 Clinical Education 2; RAD-430 Radiographic Physics; RAD-5270 Clinical Education III; RAD-163 Radiographic Procedures III; RAD-270 Clinical Education III; RAD-182 Special Procedures; RAD-770 Film Critique; RAD-896 Quality Assurance; RAD-510 Clinical Education IV; RAD-770 Film Critique & Evaluation; RAD-570 Clinical Education V; RAD-738 Radiologic Pathology; RAD-850 Radiation Protection & Biology.

Textbook(s) Required: Sectional Anatomy for Imaging Professionals, third edition by Kelley and Petersen, Mosby, Inc. ISBN: 978-0323082600

Access Code: N/A

Required Materials N/A

Suggested Materials: N/A

Institutional Outcomes:

Critical Thinking: The ability to dissect a multitude of incoming information, sorting the pertinent from the irrelevant, in order to analyze, evaluate, synthesize, or apply the information to a defendable conclusion.
Effective Communication: Information, thoughts, feelings, attitudes, or beliefs transferred either verbally or nonverbally through a medium in which the intended meaning is clearly and correctly understood by the recipient with the expectation of feedback.

Personal Responsibility: Initiative to consistently meet or exceed stated expectations over time.

Program Goals/Outcomes:

1. Demonstrate disciplinary competence and/or professional proficiency.
2. Develop critical thinking skills in planning priorities and providing safe patient care.
3. Utilize basic communication skills to foster working relationships with individuals, families, and members of the health team.
4. Practice within the profession’s ethical and legal framework.

Student Learning Outcomes:

1. Identify basic Cross Sectional Anatomy of the Cranium, facial bones, brain, spine, neck, thorax, and abdomen/pelvis regions of the human body.
2. Understand spatial relationships and anatomy using sagittal, coronal and axial planes of the human body.
3. Define anatomic locations of major vessels and organs within the human body.
4. Identify how the position of anatomy changes within various body regions.
5. Utilize critical thinking skills in evaluating anatomy using various modalities that students may encounter in Radiologic Imaging, specifically, MRI, CT and Ultrasound.

Objectives:

Unit 1:

CRANUIM, FACIAL BONES, BRAIN

1. Name the bones of the cranium and the face. Identify the four paranasal sinuses.
2. Identify the five lobes of the cerebrum.
3. Locate the components of the brainstem.
4. Compare the cerebrum and cerebellum with respect to size, appearance, location, and structure.
5. Trace the flow the cerebrospinal fluid through the ventricles in the brain.
Unit 2:

SPINE & NECK

1. Identify the bones that make-up the cervical, thoracic, lumbar, sacrum, coccyx, vertebra column.
2. Describe the meninges, segments, and nerve roots of the spinal cord.
3. Describe the location of the cervical, brachial, lumbar and sacral plexuses.
4. Identify the vasculature of the spine.
5. Describe the arterial blood supply to the brain.
6. Identify the major venous sinuses that return blood from the brain to the internal jugular vein.
7. Discuss the relationships of the esophagus and trachea as they descend through the neck.
8. Discuss the relationships of the internal jugular vein with other vessels and anatomic structures as it descends from the jugular foramen to the brachiocephalic vein.
9. State the origin and pathway of the vertebral arteries.
10. Identify the regions of the brain, blood vessels, and viscera of the head and neck in transverse, sagittal, and coronal sections.

Unit 3:

THORAX

1. Identify and describe the bones that form the thoracic cage. State the vertebral level of the jugular notch, the sternal angle, and the xiphisternal junction.
2. Describe the pleura and pleural cavities.
3. Compare the features of the right and left lungs.
4. List the divisions of the mediastinum and the contents of each region.
5. Describe the pericardial sac, the pericardium, and the pericardial cavity.
6. Describe the structure of the heart wall.
7. Define and state the location of the apex, the base, the surfaces, and the borders of the heart.
8. Trace the pathway of a stimulus through the conduction system of the heart.
9. Identify the great vessels associated with the heart by
   1. describing the location and the relationships of each vessel.
10. Trace the flow of blood through the heart from the right atrium to the ascending aorta.
11. Identify the skeletal components, the muscles, the blood vessels, and the viscera of the thorax in transverse, sagittal, and coronal sections.
Unit 4:

ABDOMEN

1. State the boundaries of the abdomen.
2. Describe the structure of the diaphragm, name and give the vertebral levels of the three major openings in the diaphragm, and identify the structures that pass through each opening.
3. State the level of origin of the visceral branches of the abdominal aorta and identify the regions each one supplies.
4. Identify the inferior vena cava.
5. Trace the pathway of blood through the hepatic portal system of veins.
6. Discuss the structure and the relationships of the liver, including its lobar subdivisions and its blood supply.
7. Discuss the visceral relationships of the gallbladder.
8. Name the regions of the small intestine.
9. Identify the regions of the large intestine.
10. Describe the location and the relationships of the spleen.
11. Discuss the location and the relationships of the head, neck, body, and tail of the pancreas.
12. Describe the location and the relationships of the kidneys, ureters, and suprarenal glands.
13. Identify the abdominal viscera, muscles, and blood vessels on transverse, sagittal, and coronal sections.

Unit 5:

PELVIS

1. Define the term “pelvis.”
2. Describe the anterior relationships of the rectum in the male and in the female.
1. Compare the relationships of the urinary organs in the male and in the female.
2. Describe the normal location and attachments of the ovaries.
3. Identify the uterus.
4. Describe the normal position and relationships of the uterus.
5. Identify and compare the three muscles of the urogenital region of the peritoneum in the male and in the female.
6. Identify the muscles, viscera, blood vessels, and skeletal components of the male pelvis in transverse, sagittal, and coronal sections.
7. Identify the muscles, viscera, blood vessels, and skeletal components of the female pelvis in transverse, sagittal, and coronal sections.
Unit 6:

EXTREMITIES AND ARTICULATIONS

1. Identify the bones that make up the pectoral girdle.
2. Identify the skeletal, muscular, vascular, and neural components of the arm.
3. Identify the skeletal, muscular, vascular, and neural components of the forearm.
4. Describe the structure of the shoulder joint, and discuss the anatomic relationships of its components.
5. Describe the structure of the elbow joint, and discuss the anatomic relationships of its components.
6. Identify the skeletal and the muscular components of the thigh.
7. Identify the skeletal and muscular components of the leg.
8. Describe the location, boundaries, and contents of the popliteal fossa.
9. Describe the structure of the knee joint, and discuss the anatomic relationships of its components.
10. Describe the structure of the ankle joint, and discuss the anatomic relationships of its components.
11. Identify the structural components of the lower extremity in transverse sections.
12. Identify the structural components of the articulations associated with the upper and lower extremities in transverse, sagittal, and coronal planes

College Procedures: All college-wide procedures are located in the Iowa Central Community College Student Handbook.

Assessments: Reading, challenge questions, workbook assignments, worksheets, quizzes, tests, exams. Please note that assessments are subject to change. Please note that assessments are subject to change

Non-discrimination Statement:

It is the policy of Iowa Central Community College not to discriminate on the basis of race, color, national origin, sex, disability, age (employment), sexual orientation, gender identity, creed, religion, and actual or potential parental, family or marital status in its programs, activities, or employment practices as required by the Iowa Code §§ 216.6 and 216.9, Titles VI and VII of the Civil Rights Act of 1964 (42 U.S.C. §§ 2000d and 2000e), the Equal Pay Act of 1973 (29 U.S.C. § 206, et seq.), Title IX (Educational Amendments, 20 U.S.C. §§ 1681 – 1688), Section 504 (Rehabilitation Act of 1973, 29 U.S.C. § 794), Age Discrimination Act of 1975 (34 CFR Part 110), and Title II of the Americans with Disabilities Act (42 U.S.C. § 12101, et seq.). If you have questions or complaints related to compliance with this policy, please contact Kim Whitmore, Director of Human Resources, phone number 515-574-1138, whitmore@iowacentral.edu; or the Director of the Office for Civil Rights, U.S. Department of Education, Citigroup Center, 500 W. Madison, Suite 1475, Chicago, IL 60661, phone number 312-730-1560, fax 312-730-1576.
Disability/Accommodation Services:

If you have a request for an accommodation based on the impact of a disability, it is Iowa Central’s policy that you contact the Academic Assistance & Accommodations Coordinator to discuss your specific needs and to provide supporting information and documentation, so we may determine appropriate accommodations. The office for accommodations is located in the Academic Resource Center, and it can be reached by calling 515-574-1045. For online information about accommodations, please go to www.iowacentral.edu/accommodations.

Bias-Free Classroom Statement:

Cross Sectional Anatomy maintains high standards of respect in regard to individual beliefs and values when selecting classroom materials including textbooks, project activities, power points, videos, presentations, and classroom discussions.

It is our belief that all people have the right to obtain an education within our department/program courses free of bias, with full respect demonstrated to all who enroll in the courses of this department/program.

External Accreditation:
The Iowa Central Community College Radiology Program is accredited by the Joint Review Committee on Education in Radiologic Technology (JRCERT).

Contact information for JRCERT: 20 N. Wacker Drive, Suite 2850 Chicago, IL 60606-3182 Phone 312-704-5300 Fax 312-704-5304 Website www.jrcert.org E-mail mail@jrcert.org