IDAHO STATE UNIVERSITY
Biologic Sciences
Cross-Sectional Anatomy BIOL 4470
Course Syllabus

Course Credit:	2 Credits
Time and Location:	Content on-line via Moodle Occasional Labs (see Moodle schedule) Wednesday 8:00 – 10:00 a.m. via Zoom (see invitation)
Instructor:	Dr. Jeff Meldrum, PhD
Email:	meldd@isu.edu
Phone:	208-282-4379

Overview:
This course has been developed for the student to learn the essentials of sectional anatomy in an easy-to-follow format with the online modules developed by the ASRT. These are accessed via Moodle and may be completed at your own pace. Students will reiterate concepts learned from the modules through occasional Zoomed labs using the *Anatomage* table. Students will compare planar anatomy to sectional anatomy and recognize anatomical structures in computed tomography and magnetic resonance imaging. Modules include the introduction to sectional anatomy, cranium and facial bones, brain, spine, neck, thorax, abdomen, pelvis, and extremities.

Required Text:
There is no required textbook for this course. The transcripts for the modules can be printed out from Moodle.

Suggested Reference Text & Atlas:

- Kelley, L.L., Petersen, C.M. Sectional Anatomy for Imaging Professionals, 3rd ed., St. Louis: Mosby, 2013 (text).

- Dean, D. and Herbener, T.E. Cross-sectional Human Anatomy. Philadelphia: Lippencott, Williams and Wilkens, 2007 (atlas).

- There are numerous on-line resources and smart phone apps, e.g. *X-Anatomy* that you may find helpful.

Course Learning Objectives/Goals:

Module 1 — Introduction to Sectional Anatomy:

- Differentiate between the sagittal, coronal, axial and oblique planes of the body.
- Name the external landmarks of the body in the head, neck and torso.
- Name the major body cavities and list the organs and systems located in each cavity.
- Describe joint classification.
- Identify the different types of diagnostic medical imaging and list their uses, advantages and disadvantages.

Module 2 — Cranium and Facial Bones:

- Name and locate the anatomical landmarks of the cranium.
- List and locate the paranasal sinuses and the skull foramina.
- Name the bones in the cranium and face.
- List the components of the temporomandibular joint, explain their function and their relationship to each other.
- Describe the structure and function of the ear.
- Identify the location and function of the facial muscles.
- List and locate the components of the eye.

Module 3 — The Brain:

- Explain the surface anatomy of the brain, including the structure of the meninges.
- Locate the structures of the brain's ventricular system.
- Describe the arterial blood supply to the brain.
- Identify the major venous sinuses that carry blood from the brain to the internal jugular veins.
- Name the lobes of the cerebrum.
- Describe the location and structure of the cerebellum.
- Identify the components and explain the function of the limbic system.
- Describe the relationships of the basal ganglia.
- Locate and identify the anatomical structures of the brainstem.
- Name the 12 cranial nerves, state the foramina that serve as passageways for each pair of nerves and describe the function of each nerve.

Module 4 — The Spine:

- Name the components of the spine.
- Identify the features of the vertebrae.
- Describe the differences between cervical, lumbar and thoracic vertebrae.
- Identify the major curves found in the vertebral column.
- Locate the major ligaments found in the spinal column.
- Identify the major muscle groups supporting the spine.
- Describe the major components of the spinal cord.

Module 5 — The Neck:

- Describe the features of the larynx.
- Locate and describe the features of the pharynx.
- Discuss the relationship of the esophagus and trachea as they descend through the neck.

- Locate and compare the relationships of the 3 sets of major salivary glands.
- Discuss the major muscles of the neck and their functions.
- Identify and locate the lymph nodes in the neck.
- Describe the major arteries and veins of the neck.

Module 6 — The Thorax:

- Distinguish the anatomical surface landmarks of the chest.
- Explain the Addison planes.
- Name the skeletal components located in the chest.
- Identify the major muscles of the chest, locate their insertion points and describe their function.
- Describe the levels of the 3 parts of the sternum with respect to the viscera or thoracic vertebrae.
- Describe the structures separating the mediastinum and the pleural cavities.
- Label the chambers of the heart on sectional images.
- Identify and describe the airway structures within the chest.
- Describe the course of blood as it passes through the pulmonary circulation system.
- Describe the major arteries and veins located within the chest and upper arm.
- State the vertebral level of the suprasternal notch, the sternal angle and the xiphisternal junction.
- Identify the components that make up the breast.
- Locate the anatomical structures of the thorax on applicable cross-sectional imaging studies.

Module 7 — The Abdomen:

- Distinguish the anatomical surface landmarks and regions of the abdomen.
- Explain the Addison planes.
- Locate the vertebral structures of the abdomen.
- Identify the major muscles of the abdomen, locate their insertion points and describe their function.
- Locate and identify the lobes of the liver.
- Describe the biliary system.
- Explain the location and general function of the stomach, gall bladder, pancreas, spleen, adrenal glands and kidneys.
- Name and explain the significance of the peritoneal and retroperitoneal spaces.
- Locate each anatomical structure on computed tomography (CT), magnetic resonance (MR), and ultrasound images in the transverse axial, coronal, sagittal and orthogonal (oblique) cross-sectional imaging planes.

Module 8 — The Pelvis:

- Describe the 3 bones that form the pelvic girdle.
- Name and locate the contents of the lower abdominal cavity.
- Locate and describe the function of the pelvic muscles.
- Identify and describe the location and function of the pelvic organs.
- Track the flow of urine within the pelvic region.
- Identify and describe the location and function of the components of the male reproductive system.
- Identify and describe the location and function of the components of the female reproductive system.
- Follow the course of arterial and venous blood flow within the pelvis.

Module 9 — The Extremities:

- Identify and describe the bones that make up the shoulder, elbow, wrist, hip, knee and ankle joints.
- Describe the origin, insertion and action of the muscles of the shoulder, elbow, wrist, hip, knee and ankle joints.
- Describe the major ligaments and tendons of the shoulder, elbow, wrist, hip, knee and ankle joints.
- Identify the anatomical structures displayed on radiographic scans of the shoulder, elbow, wrist, hip, knee and ankle joints.
- List the modalities used to image upper and lower extremity joints, as well as their advantages and disadvantages.

Academic Dishonesty Policy:

Academic dishonesty (cheating, plagiarism, etc.) will not be tolerated in this class and may result in suspension or dismissal from this course and from the program. Cases will also be referred to the Dean of Students for possible dismissal from the university.

Cheating includes, but is not limited to, (1) use of any unauthorized assistance in taking quizzes, tests, or examinations; (2) dependence upon the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or completing other assignments; or (3) the acquisition of tests or other academic materials belonging to the university faculty or staff without permission. For more information, see the ISU Policies and Procedures Policy 5000 (Student Conduct Code) located at:

http://www.isu.edu/policy/5000/5000-Student-Conduct-System.pdf

Plagiarism includes, but is not limited to, the use of, by paraphrase or direct quotation without correct recognition, the published or unpublished works of another person. The use of materials generated by agencies engaged in "selling" term papers is also plagiarism.

Many components of this course are designed to be highly interactive. Students are encouraged to take full advantage of the many resources available including Internet sites, handouts and workbooks, other textbooks and journals, faculty, and peers. This interactive collegial learning environment is conducive for life-long learning.

What does this mean: Material from modules should be used for your OWN study endeavors. Because the modules are open book, you should not obtain the answers from other students prior to taking the quizzes. This defeats the intended learning methodology. Also, DO NOT obtain material (quizzes and tests) from previous students who have taken this course. This will constitute cheating and could result in an automatic 'F' for the quiz and the course. Failure to follow these instructions will result in a failure of the course.

When students submit their efforts for grading, they are attesting that they have abided by these rules.

Classroom Procedure

Attendance: There are 5 lab sessions designed to help you further understand the material covered in the Modules. **An excused absence may be made up by attending another section with instructor permission.** Lab attendance is weighted at 20% of the overall course grade.

Late Policy: There are nine module quizzes to complete throughout this course. These may be completed as quickly as you like. However, if you do not submit the quiz before the due date listed in the course outline the following repercussions will occur. First offense - You may retake the module quiz with a 10% grade deduction applied to the earned grade. Second offense - 50% taken off earned grade. Third offense - automatic zero (no retake). Don't get behind.

Grading Procedure:

Assessment Method	Percentage Value
Each module counts as 6.66% of the course grade	60%
Participation (Lab attendance)	20%
Final Exam	20%
Total	100%

This grading Scale will be used:

+/- System	
93-100% A	73-76% C
90-92% A-	70-72% C-
87-89% B+	67-69% D+
83-86% B	63-66% D
80-82% B-	60-62% D-
77-79% C+	< 60% F

Note: A grade of C or better is required in this course in order to receive a degree from the Department of Radiographic Science. The minimum requirements to earn a passing grade are successful completion of all tests (70% minimum).

Computer Account: All students must have internet access to take this course.

CoSE X grade policy
In the College of Science & Engineering, a student who earns a failing grade via course work (exams, homework, etc.) and has unexcused absences that total more than 30% of class meetings will receive a grade of "X".

Accessibility
Our program is committed to all students achieving their potential. If you have a disability or think you have a disability (physical, learning disability, hearing, vision, psychiatric) which may need a reasonable accommodation, please contact Disability Services located in the Rendezvous Complex, Room 125, 208-282-3599 as early as possible.