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| **Course Credit:** | 2 Credits |
| **Time and Location:** | Thursday: Class NURS Rm 120 |
| **Instructor:** | Chelsie Wheatley, BSRS, BSDMS, RT(R), RDMS, RVT |
| **Phone:** | 208-241-1599 or 208-282-4042 (Secretary, Alyssa) |

**Overview:** This course will cover sonographic anatomy and scanning procedures of the abdomen and superficial structures. This class will provide a fundamental presentation of topics that are important for students to master to become competent sonographers. Emphasis will be placed on pathology, various disease processes, and their sonographic appearance in the areas of soft tissues, blood vessels, and organs of the abdominal cavities. Study of these things will enable the student sonographer to understand and use this knowledge in a clinical setting.

In this course students will be instructed in the anatomic and physiologic relationships within the abdominal cavity, comparative sectional anatomy of the abdominopelvic cavity, the vascular system of the abdominal cavity, the liver, gallbladder, biliary system, and spleen. These practices will prepare the students to be prepared for the ARDMS Abdomen (AB) Examination in concurrence with the Abdominal Sonography II course next semester.

**Textbooks:** Hagen-Ansert, Sandra L. *Textbook of Diagnostic Sonography.* 8th Edition, St. Louis, Mo: Elsevier; 2018. ISBN 978-0-323-35375-5

**Method of Presentation:**  Lecture, PowerPoint, Handouts, SonoSim, Moodle Supplement

**Code of Ethics:** DMS 4401 adheres to the ISU Code of Conduct.  In particular, academic dishonesty, however small, creates a breach in academic integrity.  A student's participation in this course comes with the expectation that his or her work will be completed in full observance of the ISU Code of Student Conduct.

**Course Learning Objectives/Goals:** This course has been designed to prepare student sonographers for the responsibilities and understanding of abdominal sonographic imaging. The student will learn the anatomic and physiologic relationships within the abdominal cavity, comparative sectional anatomy of the abdominopelvic cavity, anatomy, pathology, and sonographic appearances of normal as well as pathologic vasculature, liver, gallbladder, biliary system, and spleen. They will learn abdominal doppler techniques as well as flow patterns in the vessels. Congenital anomalies of each organ will be discussed, and basic lab values will also be taught. At the conclusion of the course, students will demonstrate knowledge of each item listed above. Ultimately, the student will gain a better understanding of the process involved in obtaining a quality abdominal sonographic exam. This classroom understanding prepares the student for the corresponding laboratory experience.

**Course Learning Outcomes:
Upon completion of this course the student will be able to:**

* Identify the body cavities and how they relate to each other
* Identify the visceral organs within the abdominal cavity and the major vessel surrounding them.
* Identify the nine abdominal regions and the four major quadrants, and be able to identify specific abdominal structures or refer to an area of pain within these regions.
* Know the function of the circulatory system and the layers of the vessels in both arterial and venous systems.
* Explain the five sections of the aorta and normal diameters of the proximal, mid, and distal portions.
* Identify the three vessels that come off of the celiac trunk, and list the order of the arteries that come off of the aorta from the proximal portion to the distal portion.
* Know the types of aneurysms (true aneurysm, pseudoaneurysm, saccular aneurysm, fusiform aneurysm, Grey Turner’s sign and how to identify these).
* Demonstrate how to classify aortic dissections.
* Know the veins that supply and drain the liver and which parts of the liver each vessel feeds.
* Identify the portal triad.
* Explain the direction of flow of the normal portal vein (hepatopetal) vs hypertensive portal venous flow (hepatofugal).
* Describe the waveforms of hepatic venous flow, portal venous flow, and pre and post prandial superior mesenteric arterial flow.
* Identify the four lobes of the liver and the ligaments/fissures that course throughout it.
* Know the Couinaud system and explain it.
* Know how to distinguish the hepatic vessels sonographically.
* List functions of the liver.
* Identify liver function tests.
* Know how to evaluate the liver parenchyma sonographically, including: the assessment of its size, configuration, homogeneity, and contour.
* Discover the subcategories of diffuse liver parenchyma disease, including: fatty infiltration, acute and chronic hepatitis, early alcoholic liver disease, and acute and chronic cirrhosis.
* Explain von Gierke’s disease and hemochromatosis.
* Discuss portal hypertension and its relationship with cirrhosis, hepatic vein thrombosis, portal vein thrombosis, and thrombosis of the IVC.
* Explain the process of portal venous hypertension and the development of shunting.
* Compare and contrast intrahepatic and extrahepatic masses.
* List the three types of hepatic abscesses.
* Identify and explain the sonographic appearance of cavernous hemangiomas, focal nodular hyperplasia, and adenomas.
* Discuss the patterns of metastatic disease and the primary sites of metastasis.
* Explain the biliary apparatus.
* Identify the ampulla of Vater.
* Know the primary functions of the extrahepatic biliary tract.
* Compare and contrast sludge, stones, wall thickening, and pericholecystic fluid.
* Know the types of cholecystitis and identify the WES sign.
* Explain the Murphy’s sign.
* Know the different pathologies of the biliary system including: cholelithiasis, cholesterolosis, polyps, adenomyomatosis, choledochal cysts, cholangitis, cholangiocarcinoma, Klatskin’s tumor, Rokitansky Aschoff sinuses.
* Explain and discuss the functions of the spleen, and the variations of the spleen.
* Identify tumors of the spleen.
* Know the normal sonographic appearance of splenic texture and size.

**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.

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 DMS 4401 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:***  I have allowed ‘printed material’ from the Web site to be available to the student.  This can present problems if not used properly.  Material from quizzes and tests should be used for your OWN study endeavors. Additionally, tests cannot be reviewed after they have been taken except in my presence. 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:**

1.  **Attendance:**  You are expected to attend class regularly.  It is your responsibility to maintain a level of attendance which will allow you to derive maximum benefit from the instruction.  Excessive absences (>10%) will result in a lower course grade if you are borderline between two grades.

2.  **Grading Procedure:**

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| **Assessment Method** | **Percentage Value** |
| Test #1 = Chapters 4,5,8 | 25% |
| Test #2 = Chapters 9 | 25% |
| Test #3 = Chapters 10, 11 | 25% |
| Cumulative Final | 25% |
| Total | 100% |

**This grading Scale will be used:**

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| +/- 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+ | 59% Below 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).  Tests and Quizzes will be a combination of either written or computer based.  Tests will be scheduled to be taken in a computer lab on campus.  The lab in the nursing building on the ground floor is the lab I try to schedule for tests; however, the Turner Lab is close to our classroom, and is the one I will try to schedule if the nursing building lab is not available. It is the student’s responsibility to know when and where tests are scheduled.  Dates are posted in the Web Course Calendar and reminders will be given in class.  Students may use their own wireless laptops if they have one if tests are given in class; otherwise, students are required to use a lab computer when testing.

3. **Computer Account:** All students are required to have an ISU student computer account.  There is no fee required for this account. Obtain the account at the Computer Center, which is located in the basement of the College of Business Building or in the Rendezvous Lab.

4.  **Make-up:** If you are unable to sit for an examination, you may request a make-up exam.  You must inform me that you will not be present for the examination **prior** to the scheduled time.  An additional 10% drop in the test grade will result if prior notification is not given and is not accepted by me prior to taking the test.  The highest grade you can receive for a make-up exam is 89% unless you provide me with an acceptable excuse. An acceptable excuse is defined **as very** sick; a death in the immediate family; some unforeseen circumstance that would prohibit you from taking the exam. The key is to communicate with me directly via email, phone, or in person. Do not speak to another faculty member or the department secretary. I’m very easy to catch with email, but make sure your email is received by me prior to the test deadline.

*In addition, it is a requirement to take all tests offered during the semester.  An incomplete will be issued for the class if a test is not taken.*

**Cell phone policy:** Cell phones should not be used in class. They should be place in silent or vibrating mode or turned off. Additionally receiving and retrieving text messages should not occur during class or in labs. Failure to follow this policy will result in a deduction of grade up to 10% at the discretion of the instructor. If you need to communicate to someone outside of the class in an emergency situation please inform the instructor so accommodations to this policy may be made.

**Disability Services:** Students with disabilities who wish to have accommodations provided by the University must self-identify with Disability Services (236-3599) in order to have accommodations provided. Information and applications are available in the Center and may be picked up in person or requested by telephone. The URL is <http://www.isu.edu/ada4isu/>