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| **Course Credit:** | 1 Credit |
| **Time and Location:** | Thursday: Class 2:00-3:00pm  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 provide a fundamental presentation of topics that are important for students to master to become competent sonographers. It will cover the anatomy and scanning procedures of the developing fetus in the first, second, and third trimester. Emphasis is placed on pathology, congenital anomalies, various disease processes, and their sonographic appearance. Activities structured follow the guidelines of the ARDMS Obstetrics and Gynecology (OB/GYN) Examination.

**Textbooks:** Hagen-Ansert, Sandra L., *Textbook of Diagnostic Sonography, Volume 2.* 8th Edition. St. Louis, Mo: Elsevier; 2018. ISBN 978-0-323-35375-5

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

**Code of Ethics:** DMS 4405 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 of sonographic imaging. The student will learn about the normal first trimester, first trimester complications, Sonography of the 2nd and 3rd trimesters, obstetric measurements and gestational age, fetal growth assessment by sonography, sonography and high-risk pregnancy, prenatal diagnosis of congenital anomalies, placenta, umbilical cord, amniotic fluid and fetal membranes. Ultimately, the students will gain a better understanding for OB sonography and obtaining quality ultrasound images. They will begin the process of the mastery of obstetric ultrasound by understanding normal vs pathologic findings. At the conclusion of this course, the students will demonstrate an understanding of the topics listed above.

**Course Learning Outcomes--Upon completion of this course, the students will be able to:**

* Describe the early development of the embryo and its sonographic appearance at different gestational ages
* Explain the clinical roles of first-trimester serum biochemistry
* Define the sonographic characteristics of the yolk sac, embryo, amnion and chorion, and gestational sac
* Describe sonographic measurements performed in the first trimester and the goals of first-trimester sonography
* Discuss the use of a first-trimester fetal anatomy survey
* Identify the methods of aneuploidy risk assessment used in the first trimester
* Describe viable and nonviable pregnancy with appropriate terminology
* Describe sonographic features of failed pregnancy
* Define sonographic appearances of retained products of conception
* Explain the clinical and sonographic findings in ectopic pregnancy
* Discuss the normal range for fetal cardiac rhythm
* Describe the cranial abnormalities seen in the first trimester
* Distinguish among normal bowel herniation, gastroschisis and omphalocele
* Explain the sonographic findings with cystic hygroma in the first trimester
* Name the types of umbilical cord masses that may be seen with ultrasound
* Differentiate between hemorrhagic corpus luteum cyst and other ovarian masses
* Discuss the difference between a fibroid and a uterine contraction on sonography
* List the components of a standard obstetric examination in the second and third trimesters and describe the fetal anatomy recommended for review
* Define terminology specific to fetal presentation
* Specify equipment and policies required for facilities performing obstetric sonography
* Describe sonographic techniques used to image specific fetal structures
* Describe normal fetal anatomy visualized in an obstetric sonography examination and variations that may be significant
* Discuss gestational sac growth, take measurements, and assess gestational age
* Describe how to perform a crown rump length measurement and evaluate growth
* Calculate the biparietal diameter, head circumference, abdominal circumference, three-dimensional cranium, and extremity measurements
* Assess fetal parameter measurements, proportions, and fetal growth
* Describe when other measurements should be used to provide additional clinical information
* Evaluate the fetal growth time-series for intrauterine growth restriction and growth disturbances
* Define high-risk pregnancy
* Describe the maternal and fetal factors for a pregnancy that is considered high risk
* Discuss the role of sonography in the high-risk pregnancy
* Describe the methods of genetic testing, including maternal serum markers, chorionic villus sampling, and amniocentesis
* Discuss how anomalies are transmitted genetically
* Detail the prevalence and prognosis of the most common chromosomal anomalies
* Describe the sonographic features of chromosomal anomalies
* Describe the embryogenesis of the placenta
* List the functions of the placenta
* List and describe imaging techniques and sonographic findings of the placenta
* Identify placental position and describe its importance
* Describe the sonographic findings and clinical significance of placental pathologies
* Recognize placental abruption with diagnostic ultrasound
* Describe the development and normal anatomy of the umbilical cord
* Predict obstetric problems that may be associated with abnormal umbilical cord dimensions
* Discuss the umbilical cord disorders presented including causes and clinical significance
* Differentiate how the sonographer may distinguish tumors and cysts from a true knot in the umbilical cord
* Describe how amniotic fluid is derived
* Describe the production of amniotic fluid
* List the functions of amniotic fluid
* Describe methods for assess amniotic fluid volume
* Determine abnormal volumes of amniotic fluid
* Understand the significance of ruptured membranes
* Describe the significance of amniotic band syndrome
* Differentiate amniotic band syndrome from amniotic sheets with sonography
* Distinguish between immune and nonimmune hydrops
* Identify causes of hydrops and recognize the sonographic features of it

**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 4405 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. 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.  Conversely, if you have good attendance and are border line between two grades, I will award the higher grade.

You are expected to attend lab 100% of the time during your scheduled section. If something urgent arises you may trade lab sections with another student. **There are no make-up sessions for missed labs, if you miss it you will receive a 0.**

2.  **Grading Procedure:**

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| **Assessment Method** | **Percentage Value** |
| Test #1 = Chapters 49-52 | 20% |
| Test #2 = Chapters 53-55 | 20% |
| Test #3 = Chapters 56-58 | 20% |
| Assignments (article quiz x 1) | 10% |
| Cumulative Final | 30% |
| 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 certificate from the Department of Radiographic Science.*

The minimum requirements to earn a passing grade are successful completion of all tests (70% minimum).  Tests 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/>

**Academic Freedom and Responsibility Syllabus Statement:** In carrying out its educational mission, Idaho State University is committed to adhering to the values articulated in Idaho State Board of Education Policy III.B. Membership in the academic community imposes on administrators, faculty members, other institutional employees, and students an obligation to respect the dignity of others, to acknowledge the right of others to express differing opinions, and to foster and defend intellectual honesty, freedom of inquiry and instruction, and free expression on and off the campus of an institution.