

## **DIAGNOSTIC MEDICAL SONOGRAPHY COURSE DESCRIPTIONS**

**BIO 107** 3 credits

### **Anatomy and Physiology I**

Homeostatic mechanisms of the human body with emphasis on structure and function are studied. Gross and microscopic structures are correlated with function of cells, tissues, organs, and systems of the body. Major topics include: skeletal, muscular, and nervous systems. Three hours of lecture per week. Co-requisite: BIO 117

**BIO 108** 3 credits

### **Anatomy and Physiology II**

Emphasis is on structure and function of endocrine cardiovascular, respiratory, lymphatic, digestive, urinary, and reproductive systems. Gross and microscopic structures are correlated with functions of cells, tissues, organs, and systems of the body. Three hours of lecture per week. Co-requisite: BIO 118

**BIO 117** 1 credit

### **Human Anatomy and Physiology Lab I**

Experimental approach to the study of human anatomy and physiology is used to reinforce lecture concepts. The exercises present the core elements of the subject matter in a hands-on manner. The labs are presented in the same time period the material is being discussed in lecture. One two-hour lab per week. Co-requisite: BIO 107

**BIO 118** 1 credit

### **Human Anatomy and Physiology Lab II**

Experimental approach to the study of human anatomy and physiology is used to reinforce lecture concepts. The exercises present the core elements of the subject matter in a hands-on manner. The labs are presented in the same time period the material is being discussed in lecture. One two-hour lab per week. Co-requisite: BIO 108

**COM 101** 3 credits

### **Composition and Research**

Core writing requirement, reviews fundamental principles of rhetoric, grammar, punctuation, and spelling. Requirements include a research paper using MLA documentation guidelines and several expository papers.

**LAE 1/COM 213** 3 credits

The Liberal Arts Elective 1 requirement can be satisfied by successful completion of COM 213 or similar COM course. Historically, COM 213 has been offered in the curricula on RHSHS campus, but the school reserves the right to provide a COM substitution. Students must receive approval from both RHSHS and AU for transfer credit.

**COM 213** 3 credits

### **Interpersonal Communication**

An introductory survey of basic theories, models and practices of interpersonal communication. Students learn interpersonal communication principles, sharpen awareness of own and others' personal communication habits and ultimately improve interpersonal communication skills.

**MAT 102** 3 credits

### **Algebra II**

This course is designed to prepare science or mathematics major for pre-calculus. Topics include algebra of polynomials, roots, radicals and exponents, relations and functions and their graphs, systems of equations and logarithms. Prerequisites: MAT 100 or satisfactory score on Mathematics Placement Test.

**LAE 2/MUS 220** 3 credits

The liberal Arts elective 2 requirement can be satisfied by successful completion of MUS 220 or a similar creative expressions course. Historically, MUS 220 has been offered in the curricula on RHSHS campus, but the school reserves the right to provide a course substitution. Students must receive approval from both RHSHS and AU for transfer credit.

**MUS 220** 3 credits

**Music and Health**

Basic music course in the theories and techniques of music as an agent of wellness. Explores music therapy, recent research and healing practice of non-Western cultures as they relate to music. Especially recommended for students planning a career in healthcare of human services. No prerequisites, no prior musical experience or performance required.

**PHI 105** 3 credits

**Introduction to Philosophy**

Historical introduction to fundamental problems and methods of philosophy based on readings in ancient, medieval and modern literature.

**PHY 110** 4 credits

**General Physics I**

Introduction to standard non-calculus college physics course. Topics include Newton's laws of motion, work, energy, impulse, momentum, properties of solids, liquids, and gases, heat, and the laws of thermodynamics. Course includes three hours laboratory per week. Prerequisite: high school algebra.

**SOC 306** 3 credits

**Racial and Cultural Relations**

Analysis of ethnic and racial differentiation in pluralistic societies. Theories of dominant and minority groups are studied. This course fulfills the human diversity graduation requirement.

**THE 210** 3 credits

**Medical Moral Theology**

Investigation of moral problems which can arise in the area of bioethics. Introductory survey of the basic Christian principles of morality is followed by treatment of various medical moral situations. A natural law methodology is applied through the course. Fulfills the Ethics/Morality requirement.

**\*\*DUALY ENROLLED STUDENTS:** THE 210 satisfies a Medical Ethics requirement for the Diagnostic Medical Sonography certificate of completion and also satisfies the Philosophy/Theology requirement for Alvernia University Associate of Science degree. Students may elect (prior to enrollment in the program) to take an equivalent Medical Ethics course in place of THE 210 which will satisfy both the program requirement and the AU Philosophy/Theology requirement. It is highly suggested that the student meet with the RSHS admissions staff to verify course transferability prior to enrolling in a substitute course.

**DMS 101** 2 credits

**Sectional Anatomy for Sonography**

This course covers the human anatomy through the evaluation of transverse, sagittal, coronal, and oblique planes. Terminology relating to ultrasound and structures of the head, neck, thorax, abdomen, pelvis and extremities are addressed. Students will be able to visualize any portion of a patient's anatomy as a three-dimensional whole and correlate it to various diagnostic images.

Prerequisites: BIO 107/117, 108/118; Co-requisites: DMS 105, 110

**DMS 105** 3 credits

**Gynecology**

This course navigates normal anatomy and physiology, and the pathology of the non-gravid pelvis. Structures covered include the vagina, cervix, uterus, ovaries, pelvic musculature and vasculature. Techniques of transabdominal and transvaginal preparation are introduced.

Prerequisites: BIO 107/117, 108/118; Co-requisites: DMS 101, 110

**DMS 110** 4 credits

**Abdominal I**

This course covers abdominal sonographic positioning and scanning protocol; related anatomy and physiology to include the liver, gallbladder, pancreas, biliary system, spleen, urinary system, adrenal glands, gastrointestinal tract, peritoneal cavity, retroperitoneum and abdominal vascularity. Technical information such as procedural and scanning techniques are discussed throughout the course and demonstrated within the laboratory component.

Prerequisites: BIO 107/117, 108/118; Co-requisites: DMS 101,105

**DMS 115** 3 credits

**Obstetrics I**

This course details the anatomy and physiology of pregnancy to include the first, second, and third trimesters. Normal fetal development, anatomical variations, lab values, placental function, amniotic fluid, and gestational issues are also discussed.

Prerequisites: DMS 101, 105, 110; Co-requisites: DMS 120, 210

**DMS 120** 2 credits

**Patient Care and Applied Ethics/Law**

Overview of patient care issues, relative medical terminology, medical ethics and law, healthcare trends, and professionalism are covered. Discussion about credentialing, governing authorities related to sonography practices, and continuing education are also included.

Prerequisites: DMS 101, 105, 110; Co-requisites: DMS 115, 210

**DMS 203** 4 credits

**Sonographic Physics and Instrumentation**

This course examines acoustical physical principles, Doppler ultrasound principles and sonographic instrumentation. Clinical application and uses in the field for diagnostic medical sonography are reviewed. Theory and laboratory will demonstrate proper techniques to produce quality diagnostic images.

Prerequisites: DMS 115, 120, 210; Co-requisites: DMS 227, 245

**DMS 210** 4 credits

**Abdominal II**

This course introduces students to the pathophysiologic principles of the liver, gallbladder, pancreas, biliary system, spleen, urinary system, adrenal glands, gastrointestinal tract, peritoneal cavity, retroperitoneum, and abdominal vasculature. Correlation between Doppler and disease processes will be examined as well as pediatric abdominal pathology.

Prerequisites: DMS 101, 105, 110; Co-requisites: DMS 115, 120

**DMS 215** 3 credits

**Obstetrics II**

The course presents the pathological and morphologic process of the second and third trimesters. This includes both maternal diseases and complications and fetal abnormalities. Clinical features, laboratory data and the relevant histologic aspects of various conditions will be presented.

Prerequisites: DMS 203, 227, 245; Co-requisites: DMS 228, 250

**DMS 227** 2 credits

**Small Parts and Superficial Structures**

This course details the anatomy and physiology of various small parts and superficial structures to include thyroid, breast, scrotum, prostate, musculoskeletal, neonatal brain, pediatric hip, and spine. Didactic coursework will correlate the normal and abnormal appearance of organs as well as scanning protocols and techniques.

Prerequisites: DMS 115, 120, 210; Co-requisites: DMS 203, 245

**DMS 228** 3 credits

**Basics of Vascular**

This course covers basic positioning and scanning protocol of the vascular system. Vascular terminology specific to the hemodynamics of the arterial, venous, and cerebrovascular application will be presented. Normal, abnormal, and pathologic states of the human vascular system with emphasis on the external carotid system, arterial and venous systems of the extremities. Theory and laboratory will demonstrate proper techniques to produce quality diagnostic images.

Prerequisites: DMS 203, 227, 245; Co-requisites: DMS 215, 250

**DMS 245** 4 credits

**Clinical I**

This course is the first clinical component of the Diagnostic Medical Sonography program. Clinical will consist of three, eight-hour days per week at a clinical site(s) designated by the RSHS program director. An interview process may be required by the clinical site as part of the approval process. Clinical: 24 hours/week; 13 weeks – 312 hours total (8.5 hour days with ½ hour lunch)

Prerequisites: DMS 115, 120, 210; Co-requisites: DMS 203, 227

**DMS 250** 6 credits

**Clinical II**

This course is the second clinical component of the Diagnostic Medical Sonography program. Clinical will consist of four, eight-hour days per week at a clinical site(s) designated by the RSHS program director. An interview process may be required by the clinical site as part of the approval process. Clinical: 32 hours/week; 15 weeks – 464 hours total (8.5 hour days with ½ hour lunch)

Prerequisites: DMS 203, 227, 245; Co-requisites: DMS 215, 228

**DMS 255** 6 credits

**Clinical III**

This course is the third clinical component of the Diagnostic Medical Sonography program. Clinical will consist of four, eight-hour days per week at a clinical site(s) designated by the RSHS program director. An interview process may be required by the clinical site as part of the approval process. Clinical: 32 hours/week; 15 weeks – 480 hours total (8.5 hour days with ½ hour lunch)

Prerequisites: DMS 215, 228, 250; Co-requisites: DMS 260

**DMS 260** 1 credit

**Professionalism and the Sonographer**

This course is a review of all materials from the Diagnostic Medical Sonography program with an emphasis on the ARDMS examination preparation. Topics such as resume preparation, job searching and the interview process will also be examined.

Prerequisites: DMS 215, 228, 250; Co-requisites: DMS 255