



## VASCULAR TECHNOLOGY AAS - COURSE DESCRIPTIONS

### **SON 1113 ULTRASOUND PHYSICS AND INSTRUMENTATION I**

A course in the physics and instrumentation of ultrasound which will cover ultrasonic wave generation and propagation, interaction of sound and matter, transducer and instrumentation designs, ultrasound scanning modes, image artifacts and quality, Doppler effect and Doppler instrumentation components.

### **SON 1153 PATIENT CARE, MEDICAL ETHICS & LAW**

Students will learn sonographer safety; current Sonographic protocols; and basic patient care. Vital sign assessment will be introduced to the student, as well as medical terminology. This course covers study techniques such as effective note taking, effective listening, and test-taking strategies. For the practitioner and student entering the clinical environment, it offers step-by-step descriptions of basic medical procedures and patient care, showing how to safely and ergonomically perform procedures and how to interact with patients in a clinical setting. This includes patient communication and psychological support strategies, as well as patient transfer techniques. Topics such as infection control will be emphasized, as well as current utilization of standard precautions to prevent the spread of infection. Emergency conditions and procedures, to include first aid and resuscitation techniques will be presented to the student. A study of medical ethics & the laws that affect and pertain to Sonographers and other imaging professionals is introduced and explained. This class will also help students make knowledgeable decisions about patient care issues in respect to ethics and law. This class examines the many issues that affect sonographers and other imaging professional and applies the examples to real-world situations. The student will be introduced to topics such as patient autonomy, medical documentation, informed consent, confidentiality & HIPPA, managed care, diversity and death and dying. The student will learn to apply their own values, common sense, and applicable healthcare law and medical ethics to solve challenging dilemmas. Professional interaction skills and the sonographer's professional scope of practice will be emphasized. Prerequisites: BIOL 1303, ENGL1113, ENGL 1213, HIST 1483, PHYS 1114, POLS 1113, MATH 1513, & CHEM 1213

### **SON 1213 PHYSICS & INSTRUMENTATION II**

Continuation of son 1113 physics & instrumentation i. A course in the physics and instrumentation of ultrasound which will cover ultrasonic wave generation and propagation, interaction of sound and matter, transducer and instrumentation designs, ultrasound scanning modes, image artifacts and quality, doppler effect and doppler instrumentation components. Prerequisites: Son 1113

### **SON 1233 VASCULAR TECHNOLOGY & SCANNING TECHNIQUES I**

Students will review basic gross anatomy and cross sectional anatomy of the lower extremity peripheral arterial, venous, extracranial, intracranial and deep abdominal avascular systems. Emphasis will be placed on the normal exam. Students will begin to familiarize themselves with the basic knobology of direct and indirect vascular testing and standard protocols.

### **SON 1253 CLINICAL EXPERIENCE I**

Clinical rotation in various clinical settings (hospital and/or clinic) for observation and some hands-on practice in a patient care setting under direct supervision of registered sonographers

### **SON 2214 VASCULAR TECHNOLOGY & SCANNING TECHNIQUES II**

Students will review the previous semester's concepts, and add the abnormal upper arterial and venous systems anatomy. Basic common disease concepts and clinical assessment will continue. Ultrasound criteria and protocols for normal and common abnormal studies will be gone over and practiced in the laboratory setting. Prerequisite: SON 1233.

### **SON 2223 VASCULAR TECHNOLOGY & SCANNING TECHNIQUES III**

Students will build on previous semesters, adding more advanced and uncommon pathology of the vascular patient. We will work on perfecting history taking, patient assessment, critical thinking and analyzing data. Advanced direct and indirect vascular procedures will be covered and analyzed. Prerequisite: SON 2214.

### **SON 2234 VASCULAR TECHNOLOGY & SCANNING TECHNIQUES IV**

Students will develop and systematic approach to problem solving using critical thinking, and increase independent judgment to aid the provider in the evaluation of the peripheral vascular patient with vascular disease. A complete review in the laboratory setting of vascular anatomy, physiology, assessment, history taking and analyzing data for the preparation of the preliminary report. Prerequisite: SON 2223.

### **SON 2253 CLINICAL EXPERIENCE II**

Clinical rotation in various clinical settings (hospital and/or clinic) for observation and hands-on practice in a patient care setting under direct supervision of registered sonographers. Prerequisite: SON 1253.

### **SON 2313 CARDIOVASCULAR CONCEPTS**

This course is a continuation from SON 1153 and will continue to expand the knowledge of the cardiovascular sonographer. The course is designed to prepare the student for the Cardiovascular Principles section of their Registry. The anatomy and physiology of the cardiac and vascular systems are presented, with special emphasis on the relationship and connection of the two systems. Topics such as cardiovascular anatomy, cardiovascular physiology and hemodynamics, pathology, pathophysiology, pharmacology of the cardiovascular system, the electrical conduction system, congenital heart defects, intracardiac pressures and their correlation with other cardiovascular phenomenon, coronary artery distribution, determinants and assessment of left ventricular performance and the phases of the cardiac cycle are discussed. Examination methods and interventional procedures are also explained. The textbook contains hundreds of sample questions that will help the student to prepare for clinical life as well as their national Registry. Prerequisite: SON 1153

### **SON 2353 CLINICAL EXPERIENCE III**

Clinical rotation in various clinical settings (hospital and/or clinic) for observation and some hands-on practice in a patient care setting under direct supervision of registered sonographers. Prerequisite: SON 2253.

### **SON 2453 CLINICAL EXPERIENCE IV**

Clinical rotation in various clinical settings (hospital and/or clinic) for observation and some hands-on practice in a patient care setting under direct supervision of registered sonographers. Prerequisite: SON 2353.

### **BIOL 1214 HUMAN ANATOMY**

Morphology of the human body and its systems. Laboratory includes dissection and study of the human cadaver. Prerequisite: [R] [SCI] Math 0104

### **PHYS 1114 GENERAL PHYSICS I (L, N)**

Physics for the non-engineering major or non-physics major. The course includes topics in mechanics, heat and sound with applications of each. Prerequisite: [R] [Sci] MATH 1513. MATH 1613 recommended OR MATH 1715. Lab: three hours per week

### **PSIO 2314 HUMAN PHYSIOLOGY**

Structure and function of the systems of the human body. Lab: three hours per week. Pre-requisite: CHEM 1214 or CHEM 1314.