

Content Description	
Anatomy & physiology	20%
Cerebrovascular	
<i>Cerebrovascular normal anatomy</i>	
Evaluate the cerebrovascular vessels	
<i>Cerebrovascular hemodynamics</i>	
Evaluate the cerebrovascular vessels for normal perfusion	
Venous	
<i>Venous normal anatomy</i>	
Evaluate the veins of upper extremities	
Evaluate the veins of lower extremities	
Evaluate the central venous system	
<i>Venous hemodynamics</i>	
Evaluate the effects of limb augmentation maneuvers on venous flow	
Evaluate the effects of respiration on venous flow	
Peripheral arterial	
<i>Peripheral arterial normal anatomy</i>	
Evaluate the upper extremity arteries for obstruction	
Evaluate the lower extremity arteries for obstruction	
<i>Peripheral arterial hemodynamics</i>	
Assess pressure changes following exercise	
Assess segmental pressure gradients	
Abdominal/visceral	
<i>Abdominal/visceral normal anatomy</i>	
Evaluate the abdominal/visceral vessels	
<i>Abdominal/visceral hemodynamics</i>	
Evaluate the abdominal/visceral vasculature for perfusion	
Pathology	19%
Cerebrovascular	
<i>Cerebrovascular abnormal perfusion and physiology</i>	
Evaluate the cerebrovascular vessels for disease	
<i>Cerebrovascular postoperative (surgically corrected) anatomy</i>	
Evaluate the carotid arteries following endovascular repair	
Venous	
<i>Venous abnormal perfusion and physiology</i>	
Evaluate the veins of the upper extremity for disease	
Evaluate the veins of the lower extremity for disease	
Evaluate the central veins for disease	
<i>Venous postoperative (surgically corrected) anatomy</i>	
Assess dialysis access (i.e., fistula or graft)	
Peripheral arterial	
<i>Peripheral arterial abnormal perfusion and physiology</i>	

Evaluate the arteries of the upper extremity for disease
Evaluate the arteries of the lower extremity for disease
<i>Peripheral arterial postoperative (surgically corrected) anatomy</i>
Evaluate vessels post intervention (e.g., angioplasty, stents)
Evaluate postoperative bypass grafts
Abdominal/visceral
<i>Abdominal/visceral abnormal perfusion and physiology</i>
Evaluate the abdominal/visceral vessels for disease
<i>Abdominal/visceral postoperative (surgically corrected) anatomy</i>
Evaluate the abdominal/visceral vessels post-endovascular repair or bypass
Evaluate transplant organs
Patient care 4%
<i>Communication</i>
Educate the public and other health care professionals in the application of vascular tests
Interact with supervising physician as to procedures to be followed for examination
Use a computer for patient scheduling
Use a computer for report generation
Use a computer for storage of demographic data
Integration of data 10%
Cerebrovascular
<i>Cerebrovascular incorporate outside data (Clinical assessment, H & P, Lab values, Risk factors)</i>
Obtain pertinent clinical history and physical findings from patient and medical record
<i>Cerebrovascular interpretation (Differential diagnosis)</i>
Compare results with previous studies
Provide preliminary interpretation of test results verbally or in writing to referring physician
Report the limitations of the exam
Venous
<i>Venous incorporate outside data (Clinical assessment, H & P, Lab values, Risk factors)</i>
Obtain pertinent clinical history and physical findings from patient and medical record
<i>Venous interpretation (Differential diagnosis)</i>
Compare results with previous studies
Provide preliminary interpretation of test results verbally or in writing to referring physician
Report the limitations of the exam
Peripheral arterial
<i>Peripheral arterial incorporate outside data (Clinical assessment, H & P, Lab values, Risk factors)</i>
Obtain pertinent clinical history from patient and medical record
<i>Peripheral arterial interpretation (Differential diagnosis)</i>
Compare results with previous studies
Provide preliminary interpretation of test results verbally or in writing to referring physician
Report the limitations of the exam
Abdominal/visceral
<i>Abdominal/visceral incorporate outside data (Clinical assessment, H & P, Lab values, Risk factors)</i>
Obtain pertinent clinical history and physical findings from patient and medical record
<i>Abdominal/visceral interpretation (Differential diagnosis)</i>
Compare results with previous studies

Provide preliminary interpretation of test results verbally or in writing to referring physician
Report the limitations of the exam
Protocols 33%
Cerebrovascular
<i>Cerebrovascular clinical standards and guidelines</i>
Evaluate the cerebrovascular vessels
<i>Cerebrovascular measurement techniques</i>
Analyze Doppler waveforms
Venous
<i>Venous clinical standards and guidelines</i>
Evaluate the veins of the upper extremity for obstruction
Evaluate the veins of the lower extremity for obstruction
Evaluate the central veins for obstruction
Evaluate veins for vessel mapping
<i>Venous measurement techniques</i>
Assess venous valvular competency with cuff inflation techniques
Assess venous valvular competency with tilt table techniques
Use tourniquet techniques when evaluating for venous reflux
Analyze Doppler waveforms
<i>Venous non-sonographic techniques</i>
Use plethysmography for valvular competence
Peripheral arterial
<i>Peripheral arterial clinical standards and guidelines</i>
Evaluate the arteries of the upper extremity for obstruction
Evaluate the arteries of the lower extremity for obstruction
Evaluate arteries for vessel mapping
<i>Peripheral arterial measurement techniques</i>
Analyze Doppler waveforms
Calculate pressure indices
Determine systolic pressure
<i>Peripheral arterial non-sonographic techniques</i>
Assess the palmar arch for patency with digital pressures or waveforms
Evaluate for cold sensitivity
Perform digital photoplethysmography
Perform volume pulse recording
Abdominal/visceral
<i>Abdominal/visceral clinical standards and guidelines</i>
Evaluate the abdominal/visceral vessels for obstruction
<i>Abdominal/visceral measurement techniques</i>
Perform acceleration time calculations
Perform resistive indices calculations
Analyze Doppler waveforms
Physics & instrumentation 5%
<i>Artifacts</i>

Recognize the presence of imaging artifacts
<i>Imaging instruments</i>
Record images using digital storage
Use a linear array transducer
Use a phased array transducer
<i>Quality assurance/ Statistics</i>
Perform quality assurance checks on equipment
Compute statistics on lab data to document accuracy of testing
Perform validation studies (e.g., review venograms and/or arteriograms)
Treatment 7%
Cerebrovascular
<i>Cerebrovascular intraoperative procedures</i>
Provide intraoperative duplex assessment
Provide intraoperative monitoring via transcranial Doppler
Venous
<i>Venous intraoperative procedures</i>
Provide intraoperative duplex assessment during venous ablation procedures
Peripheral arterial
<i>Peripheral arterial intraoperative procedures</i>
Provide intraoperative duplex assessment during percutaneous angioplasty
Provide intraoperative monitoring during bypass procedures
<i>Peripheral arterial sonographer role in procedures</i>
Assist in ultrasound guided pseudoaneurysm thrombin treatment
Perform pseudoaneurysm compression
Abdominal/visceral
<i>Abdominal/visceral intraoperative procedures</i>
Provide intraoperative monitoring during abdominal surgery
Provide intraoperative monitoring via intravenous ultrasound (IVUS)
Other 2%
<i>Traumatic injury</i>
Evaluate vessel injury following trauma
<i>Miscellaneous conditions/tests</i>
Identify cysts
Evaluate thoracic outlet syndrome