Sonography Principles and Instrumentation (SPI) Tasks
Clinical safety 4%
Adjust the default presets based on the clinical environment
Clean and disinfect transducers in accordance to manufacturer's guidelines
Decrease output power when appropriate
Modify the exam based on the displayed mechanical index
Modify the exam based on the displayed thermal index
Practice ALARA principles
Provide ergonomic education/training
Routinely perform basic cleaning (e.g. cleaning filters) of the ultrasound system
Use ergonomic devices to assist with scanning
Use ergonomic techniques while scanning
Physical principles 10%
Select equipment parameters to optimize axial resolution
Select equipment parameters to optimize lateral resolution
Select equipment parameters to optimize temporal resolution
Use knowledge of reflectors to modify scanning technique
Ultrasound transducers 7%
Choose a specific transducer type based on the area being scanned
Manually adjust transducer frequency based on the area being scanned
Use a curvilinear array transducer
Use endocavity transducers
Use linear array transducers
Use phased array transducers
Pulsed echo instrumentation 35%
Adjust depth of focus
Adjust display depth based on exam being performed
Adjust dynamic range
Adjust edge enhancement
Adjust gray-scale maps
Adjust overall gain
Adjust persistence
Adjust time gain compensation
Change the number of focal zones during the exam
Modify the exam based on gray-scale artifacts
Obtain measurements of anatomic structures
Record digital video clips
Record images on a department-wide picture archive and communication (PACS) system
Use coded excitation
Use digital image storage
Use extended field of view
Use frequency compounding
Use harmonic imaging
Use spatial compounding
Doppler instrumentation and hemodynamics 35%
Adjust color angle to flow
Adjust color gain
Adjust color maps
Adjust color scale

Adjust Doppler angle to flow
Adjust Doppler gain
Adjust Doppler scale
Evaluate spectral Doppler waveforms
Modify the exam based on color artifacts
Modify the exam based on Doppler artifacts
Obtain measurements of blood flow velocities
Use power Doppler imaging
Quality assurance 4%
Conduct performance tests using phantoms
Conduct performance tests with Doppler flow phantoms
Protocols 4%
Tailor the exam based on situation/findings
New technologies 1%
Perform elastography imaging
Use 3-D imaging
Use 4-D imaging
Use contrast agents
Use off-line volume rendering for 3-D