



Course Number and Title: DMS 201 Clinical Internship I

Campus Location:

Wilmington

Effective Date:

2020-51

Prerequisite:

DMS 114, DMS 122, VAS 112

Co-Requisites:

none

Course Credits and Hours:

3.00 credits

0.00 lecture hours/week

15.00 lab hours/week

Course Description:

This introductory course is the continued experience in a clinical setting for application of learned technical skills. The course includes demonstrations in the use and care of ultrasound equipment and initiates participation, under direct supervision, in actual sonographic procedures.

Required Text(s):

Obtain current textbook information by viewing the [campus bookstore - https://www.dtcc.edu/bookstores](https://www.dtcc.edu/bookstores) online or visit a campus bookstore. Check your course schedule for the course number and section.

Additional Materials:

DMS Program Student Manual, including policies and DMS Clinical Competency Requirements

CCHS Non-Employee Orientation Manual

Allied Health/Science Department Policy Manual

Instructor Handouts

Schedule Type:

Classroom Course

Disclaimer:

None

Core Course Performance Objectives (CCPOs):

1. Integrate learned didactic and lab principles in the clinical setting. (CCC 1, 2, 3, 4, 5, 6; PGC 1, 2, 3, 4)
2. Comply with college and clinical affiliate department policies and procedures. (CCC 1, 2, 3, 4; PGC 2, 3, 4)
3. Demonstrate professional behaviors in all matters relating to patient, family, and other healthcare members. (CCC 3, 4; PGC 3)
4. Operate ultrasound instrumentation and other equipment necessary for sonographic procedures competently. (CCC 1, 2, 5, 6; PGC 1, 2, 4)
5. Explain proper pre-examination preparation and acquisition of pertinent patient medical information. (CCC 1, 2, 5, 6; PGC 1, 2, 4)
6. Initiate and perform diagnostic medical sonographic procedures within the plan of care and scope of responsibility. (CCC 1, 2, 3, 4, 5, 6; PGC 1, 2, 3, 4)
7. Perform with competency the basic views of the abdomen, superficial structures, and the gravid and nongravid pelvis using real-time ultrasound equipment. (CCC 1, 2, 3, 4, 5, 6; PGC 1, 2, 3, 4)
8. Perform with competency the extremity arterial, venous exams, and carotid exam using physiological testing and real-time ultrasound equipment. (CCC 1, 2, 3, 4, 5, 6; PGC 1, 2, 3, 4)

See Core Curriculum Competencies and Program Graduate Competencies at the end of the syllabus. CCPOs are linked to every competency they develop.

Measurable Performance Objectives (MPOs):

Upon completion of this course, the student will:

1. Integrate learned didactic and lab principles in the clinical setting.
 1. Apply knowledge and skill of performing basic 2D sonography and physiological tests in the clinical setting.
2. Comply with college and clinical affiliate department policies and procedures.
 1. Comply with college policies, including the Allied Health Department Policy Manual and the Diagnostic Medical Sonography Program Student Manual.
 2. Comply with clinical affiliate department policies and procedures.
 3. Maintain student attendance records and clinical log records.

4. Document the clinical activities in a timely manner.
3. Demonstrate professional behaviors in all matters relating to patient, family, and other healthcare members.
 1. Demonstrate appropriate interaction skills with physicians, staff, patient, family, and other healthcare members in the clinical setting.
 2. Demonstrate professional behavior, including appropriate attire.
 3. Comply and maintain confidentiality in verbal and written communication.
4. Operate ultrasound instrumentation and other equipment necessary for sonographic procedures competently.
 1. Identify and explain the function of the basic, generic instrumentation controls on a duplex ultrasound system and other equipment necessary for sonographic procedures.
 2. Select the appropriate transducer according to the procedure requested and patient body habitus.
 3. Demonstrate the correct usage of the controls for optimal study results and image quality.
 4. Demonstrate usage of the system components for documentation of the ultrasound study.
 5. Select correct plethysmography when available, and demonstrate operational knowledge and practice proper procedures, if applicable.
5. Explain proper pre-examination preparation and acquisition of pertinent patient medical information.
 1. Explain and perform pre-examination preparation by:
 1. Selecting correct instrumentation
 2. Obtaining optimum machine setting
 3. Obtaining patient history and identify clinical signs and symptoms
 4. Using proper patient positioning and safely assist the patient for the procedure.
 2. Properly prepare and maintain the patient area within the clinical site.
6. Initiate and perform diagnostic medical sonographic procedures within the plan of care and scope of responsibility.
 1. Select pertinent information from medical chart and patient report for documentation.
 2. Document significant clinical information and historical facts from the patient and the medical records that may impact on the diagnostic information.
 3. Apply exam protocols and criteria necessary for interpreting sonographic study.
 4. Recognize problem states; then clearly describe known solutions to problems.
7. Perform with competency the basic views of the abdomen, superficial structures, and the gravid and nongravid pelvis using real-time ultrasound equipment.
 1. Select appropriate transducer and instrument settings appropriate to the requested part and body habitus.
 2. Perform required competency as outlined in DMS Clinical Competency Requirements to include basic views of the abdomen, superficial structures, and the gravid and nongravid pelvis.
 3. Document properly annotated diagnostic images of the pertinent normal and abnormal anatomy in all the appropriate scan planes of the abdomen and superficial structures including pancreas, liver, gallbladder/biliary system, spleen, great vessels, kidneys/urinary tract, and thyroid.
 4. Document properly annotated diagnostic images and measurements of the pertinent normal and abnormal anatomy in all the appropriate scan planes of the gravid and nongravid pelvis, including transabdominal scanning of uterus, ovaries, adnexal structures, and second/third trimester pregnancies.
 5. Document observation and/or participation of scrotum/testicles, and prostate as well as invasive procedures such as aspirations and biopsies.
8. Perform with competency the extremity arterial, venous exams, and carotid exam using physiological testing and real-time ultrasound equipment.
 1. Select appropriate transducer and instrument settings appropriate to the requested part and body habitus.
 2. Perform required competencies as outlined in DMS Clinical Competency Requirements to include extremity arterial vascular procedures of pulse volume recording/segmental limb pressure (PVR/SLP), venous duplex, and carotid Doppler exam using appropriate records, patient information, and clinical skills.
 3. Apply the PVR/SLP protocol for lower extremity arterial examination, and perform the procedures that include:
 1. Identify normal waveform and waveform morphology.
 2. Obtain PVR.
 3. Obtain multilevel segmental pressures bilaterally and ability to calculate ankle-brachial index (ABI).
 4. Explain segmental pressure, and determine need for exercise testing or perform thoracic outlet maneuvers, if applicable.
 5. Discuss the need to perform duplex imaging where appropriate.
 6. Recognize levels suggesting stenosis and degree of flow reduction.
 4. Apply the lower extremity venous duplex exam protocol and perform the procedures that include:
 1. Image and identify the deep and superficial venous system (where appropriate) with and without compression.
 2. List and identify differential of pathology.
 3. Demonstrate each vessel with spectral Doppler, and document phasicity and augmentation where appropriate.
 4. Use color Doppler to differentiate occlusive versus partial.
 5. Apply protocol and practice performance of the carotid/vertebral arteries procedures that include:
 1. Image and identify carotid artery and divisions (CCA, Bulb, ICA, and ECA) in transverse and longitudinal views.
 2. Image and identify vertebral artery in longitudinal view.
 3. Demonstrate spectral waveform and measure peak systolic velocity (PSV) and end diastolic velocity (EDV) in each vessel in the longitudinal view.
 4. Calculate ICA/CCA ratio using existing data.
 5. Demonstrate appropriate color and Doppler techniques.
 6. Identify and describe differentials of pathology, including:
 1. Ulceration.

2. Characterization of plaque.
 3. Dissection.
 4. Carotid body tumors.
 5. Aneurysm.
 6. Surgical intervention.
 7. Discuss flow states of CCA, ICA, ECA and vertebral artery including stenosis, post-stenotic turbulence, occlusion, and subclavian steal syndrome.
6. Document observation and/or participation of the following vascular ultrasound exams, if applicable:
1. Upper extremity PVR/SLP.
 2. Arterial duplex evaluation of bypass graft/hemodialysis graft.
 3. Upper extremity venous duplex.
 4. Vein mapping.
 5. Venous insufficiency/valvular incompetency test.
 6. Transcranial Doppler.
 7. Blood flow in the penis.

Evaluation Criteria/Policies:

Students must demonstrate proficiency on all CCPOs at a minimal 75 percent level to successfully complete the course. The grade will be determined using the Delaware Tech grading system:

92	-	100	=	A
83	-	91	=	B
75	-	82	=	C
0	-	74	=	F

Students should refer to the [Student Handbook - https://www.dtcc.edu/handbook](https://www.dtcc.edu/handbook) for information on the Academic Standing Policy, the Academic Integrity Policy, Student Rights and Responsibilities, and other policies relevant to their academic progress.

Final Course Grade:

Calculated using the following weighted average

Evaluation Measure	Percentage of final grade
19-23 Clinical Competencies (equally weighted) (summative)	60 %
Midterm Appraisal (summative)	10 %
Final Evaluation (summative)	30 %
TOTAL	100%

Core Curriculum Competencies (CCCs are the competencies every graduate will develop):

1. Apply clear and effective communication skills.
2. Use critical thinking to solve problems.
3. Collaborate to achieve a common goal.
4. Demonstrate professional and ethical conduct.
5. Use information literacy for effective vocational and/or academic research.
6. Apply quantitative reasoning and/or scientific inquiry to solve practical problems.

Program Graduate Competencies (PGCs are the competencies every graduate will develop specific to his or her major):

1. Perform competently a full range of diagnostic medical sonographic procedures pertaining to their learning concentration.
2. Utilize professional verbal, nonverbal, and written communication skills in patient care, procedure intervention, and professional relationships.
3. Act in a professional and ethical manner and comply with professional scope of practice.
4. Integrate critical thinking and problem solving skills as expected of a healthcare professional.

Disabilities Support Statement:

The College is committed to providing reasonable accommodations for students with disabilities. Students are encouraged to schedule an appointment with the campus Disabilities Support Counselor to request an accommodation needed due to a disability. A listing of campus Disabilities Support Counselors and contact information can be found at the [disabilities services - https://www.dtcc.edu/disabilitysupport](https://www.dtcc.edu/disabilitysupport) web page or visit the campus Advising Center.