Course Number and Title: DMS 113 Gynecological Sonography

Campus Location: Wilmington

Effective Date: 2021-51

Prerequisite: BIO 120, DMS 106, SSC 100 or concurrent

Co-Requisites: none

Course Credits and Hours:
2.00 credits
2.00 lecture hours/week
1.00 lab hours/week

Course Description:
This course is a study of the reproductive organs of the female in the non-gravid state. Topics include the role of diagnostic medical sonography in the determination of congenital anomalies, pathology, infertility management, and contraception.

Required Text(s): Obtain current textbook information by viewing the campus bookstore - 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
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 previous knowledge of anatomy and physiology to examine the sonographic appearance of the female pelvis. (CCC 1, 2, 3, 4, 5, 6; PGC 1, 2, 3, 4)
2. Explain the technique and special considerations adapted in the evaluation of congenital anomalies. (CCC 1, 2, 4, 5, 6; PGC 1, 2, 4)
3. Explain the principles of scanning technique in pediatric gynecologic ultrasound. (CCC 1, 2, 5, 6; PGC 2, 4)
4. Integrate previous knowledge of anatomy and physiology to explain the sonographic technique and criteria used in the assessment of benign pathologic masses of the female pelvis. (CCC 1, 2, 4, 5, 6; PGC 1, 2, 3, 4)
5. Explain the role of ultrasound imaging with respect to malignant masses of the female pelvis. (CCC 1, 2, 4, 5, 6; PGC 1, 2, 3, 4)
6. Discuss the efficacy of ultrasound in the evaluation of pelvic inflammatory disease (PID) and endometriosis. (CCC 1, 2, 4, 5, 6; PGC 1, 2, 3, 4)
7. Explain the role of sonography as it relates to the management of infertility and contraception. (CCC 1, 2, 4, 5, 6; PGC 1, 2, 3, 4)
8. Explain the techniques and criteria used in the assessment of an ectopic pregnancy. (CCC 1, 2, 4, 5, 6; PGC 1, 2, 3, 4)
9. Integrate and apply learned didactic and lab principles in a laboratory setting. (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 previous knowledge of anatomy and physiology to examine the sonographic appearance of structures in the female pelvis.
   1. Name and describe the anatomy of the female pelvis including skeletal, musculature, vascularity, pelvic organs, and related structures.
   2. Discuss the uterus with respect to the different regions, layers, size, shape, ligaments, and variations in position.
   3. Explain the sonographic appearance, follicular developments, and location of the ovaries.
   4. Discuss Doppler measurements of the uterus and ovaries.
   5. List the endometrial, ovarian, and endocrine changes through a normal menstrual cycle and their sonographic appearance.

2. Explain the technique and special considerations adapted in the evaluation of congenital anomalies.
   1. Discuss the incidence of congenital anomalies of the female reproductive system.
   2. Explain the increased incidence of complications, in pregnant and non-pregnant females, related to congenital anomalies.
   3. Describe the sonographic appearance and scanning technique used to evaluate anomalies of the uterus and vagina.
   4. Discuss potential imaging pitfalls that may simulate an anomaly.
   5. Explain treatment and complementary imaging modalities used in the assessment of congenital anomalies of the female genital system.

3. Explain the principles of scanning technique in pediatric gynecologic ultrasound.
   1. Integrate previous knowledge of anatomy and physiology to examine the sonographic appearance of structures in the pediatric patient.
   2. Describe the major indications, examination technique, and protocol.
   3. Discuss the diagnostic criteria used in evaluation of abnormalities in the pediatric patient:
      1. Ambiguous genitalia
      2. Precocious puberty
      3. Hydrocolpos
      4. Ovarian torsion
   4. Discuss diagnostic criteria, differential diagnosis, pathology, and treatment of some genital tumors in the pediatric patient.

4. Integrate previous knowledge of anatomy and physiology to explain the sonographic techniques and criteria used in the assessment of benign pathologic masses of the pelvis.
   1. Discuss the clinical utility of diagnostic ultrasound in the assessment of benign masses of the female pelvis.
   2. Discuss some of the benign diseases and the sonographic appearance of the vagina, cervix, and uterus.
   3. Describe the ovaries in terms of anatomy, general sonographic technique, and complementary imaging modalities.
   4. Discuss various benign cystic masses of the pelvic adnexa.
   5. Discuss the differential diagnosis for benign pelvic adnexal masses.
   6. Discuss the role of Doppler in evaluating pathology in the pelvis.

5. Examine the role of ultrasound imaging with respect to malignant masses of the female pelvis.
   1. Discuss the incidence and prognosis of pelvic malignancies.
   2. Discuss the epidemiology and risk factors of pelvic malignancies.
   3. Examine the histologic classification, clinical features, and associated sonographic findings relating to malignant masses of the female pelvis.
   4. Discuss the role of ultrasound with regard to the various aspects of the disease process including:
      1. Spread and staging
      2. Clinical considerations
      3. Imaging diagnosis
      4. Sonographic monitoring
      5. Scanning protocol
      6. Differential diagnoses

6. Discuss the efficacy of ultrasound in the evaluation of pelvic inflammatory disease (PID) and endometriosis.
   1. Compare and contrast pelvic inflammatory disease and endometriosis in terms of etiology, clinical findings, sonographic characteristics, and differential diagnosis.
   2. Discuss the role of ultrasound with respect to the progression, treatment, and management of PID.
   3. Discuss endometriosis in terms of etiology, clinical findings, and sonographic evaluation.
   4. Define and discuss adenomyosis in terms of the clinical and sonographic findings and treatment.

7. Explain the role of sonography as it relates to the management of infertility and contraception.
   1. Define infertility, and discuss different causes of infertility related to males and females.
   2. Discuss the protocol and role of ultrasound in monitoring the process of ovulation induction and fertilization.
   3. Discuss in vitro fertilization with embryo transfer (IVF-ET).
   4. Discuss ovulation induction therapy and the associated possible complications of multiple gestation or ovarian hyperstimulation syndrome.
   5. Discuss the role of ultrasound in the management of elective abortion.
   6. Define intrauterine contraceptive device (IUD), and discuss in terms of types.
   7. Discuss the sonographic technique and appearance in imaging an IUD.

8. Explain the techniques and criteria used in the assessment of an ectopic pregnancy.
   1. Define ectopic pregnancy, and identify the various possible implantation sites.
   2. Discuss the importance of obtaining and correlating clinical information.
   3. Explain the sonographic characteristics and the technical protocol used in the assessment of ectopic pregnancy.
   4. Compare and contrast the clinical utility of transvaginal and transabdominal scanning in the evaluation of the suspected ectopic pregnancy.
   5. Discuss the treatment of ectopic pregnancy.

9. Integrate and apply learned didactic and lab principles in a laboratory setting.
   1. Demonstrate professional behavior and appropriate communication skills.
   2. Demonstrate a basic knowledge of instrumentation and transducer selection.
   3. Perform at a supervised, dependent level the requisite skills necessary to obtain required anatomical images and anatomical planes for measurement of uterus, ovaries, and visible pathology.
   4. Demonstrate a basic knowledge of scanning techniques and performance of quality control.
   5. Produce written reports of findings using sonographic terminology.
Evaluation Criteria/Policies:
The grade will be determined using the Delaware Tech grading system:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Score Range</th>
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<tbody>
<tr>
<td>A</td>
<td>90 – 100</td>
</tr>
<tr>
<td>B</td>
<td>80 – 89</td>
</tr>
<tr>
<td>C</td>
<td>70 – 79</td>
</tr>
<tr>
<td>F</td>
<td>0 – 69</td>
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</tbody>
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Students should refer to the Student 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

<table>
<thead>
<tr>
<th>Evaluation Measure</th>
<th>Percentage of final grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 Tests (14% each) (summative)</td>
<td>42%</td>
</tr>
<tr>
<td>Paper/Presentation (formative)</td>
<td>5%</td>
</tr>
<tr>
<td>Phantom, Workbook, Class Assignments &amp; quizzes (formative)</td>
<td>3%</td>
</tr>
<tr>
<td>3 Lab Competencies (10% each) (summative)</td>
<td>30%</td>
</tr>
<tr>
<td>Final Comprehensive Exam (summative)</td>
<td>20%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100%</td>
</tr>
</tbody>
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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 web page or visit the campus Advising Center.