



## MASTER COURSE OUTLINE

### A. DMSG 1410 Ultrasound Cross-Sectional Anatomy II

### B. COURSE DESCRIPTION:

This course focuses on a detailed study of the normal anatomy and physiology of the male and female reproductive system, obstetrics covering all trimesters, breast sonography and vascular systems as it relates to the ultrasound field. Students will be able to determine normal sonographic appearances and recognize variances and sizes of organs and vessels. This course will explore the hemodynamics patterns and spectral waveforms found in the male and female pelvis and obstetrics.

Prerequisite(s): DMSG1401, DMSG1402, DMSG1404, DMSG1405, DMSG1406.

**(3 Cr – 3 lect, 0 lab)**

### C. \*Core Theme: Critical Thinking

### D. RIVERLAND INSTITUTIONAL LEARNING OUTCOMES:

This course addresses the following Riverland Institutional Learning Outcome(s):

- ☒ ILO 1: critical thinking (*Core Theme Goal 2*)
- ☐ ILO 2: awareness of the larger global community (*Core Theme Goal 7 or 8*)
- ☐ ILO 3: ethical, engaged citizenship (*Core Theme Goal 9 or Goal 10*)
- ☐ ILO 4: communication and collaboration (*Discipline Goal 1 and by any learning outcome(s) involving communication or collaboration*)

### E. MAJOR CONTENT AREAS:

- Female Pelvis
- Male Pelvis
- First Trimester Obstetric Sonography
- Second Trimester Obstetric Sonography
- Third Trimester Obstetric Sonography
- Sonographic Obstetric Measurements
- Female Breast Sonography
- Extracranial Cerebrovascular
- Peripheral Vascular Systems

F. GOAL TYPE, OBJECTIVES, AND OUTCOMES:

| <u>GOAL TYPE</u>          | <u>OBJECTIVES</u>                                                                                                                                                                                                                                                                                                                                           | <u>OUTCOMES</u>                                                                                                                                                                                                                            |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                           | <b>Students will be able to</b>                                                                                                                                                                                                                                                                                                                             | <b>The student will successfully</b>                                                                                                                                                                                                       |
| <u>*Critical Thinking</u> | <ul style="list-style-type: none"> <li>gather factual information and apply it to a given problem in a manner that is relevant, clear, comprehensive, and conscious of possible bias in the information selected.</li> </ul>                                                                                                                                | <ol style="list-style-type: none"> <li>determine sonographic cross-sectional anatomy and functions of the male and female reproductive systems.</li> </ol>                                                                                 |
| <u>CS</u>                 | <ul style="list-style-type: none"> <li>describe the key sonographic features of a normal early gestational sac.</li> <li>identify the sonographic appearance and developmental milestones of the early embryo.</li> <li>differentiate between normal and abnormal early pregnancy findings using ultrasound criteria.</li> </ul>                            | <ol style="list-style-type: none"> <li>determine the normal ultrasound appearance of the gestational sac and early embryo.</li> </ol>                                                                                                      |
| <u>CS</u>                 | <ul style="list-style-type: none"> <li>recognize fetal anatomical structures routinely evaluated during the second and third trimester exams.</li> <li>describe the normal ultrasound appearance of major fetal organ systems in later pregnancy.</li> <li>demonstrate accurate labeling of fetal anatomy in second- and third-trimester images.</li> </ul> | <ol style="list-style-type: none"> <li>identify normal sonographic anatomy of the second and third trimester.</li> </ol>                                                                                                                   |
| <u>CS</u>                 | <ul style="list-style-type: none"> <li>describe normal placental location, texture, and structure throughout pregnancy.</li> <li>explain placental function as it relates to fetal development and maternal physiology.</li> <li>identify sonographic markers used to assess placental health and maturity.</li> </ul>                                      | <ol style="list-style-type: none"> <li>identify sonographic anatomy and functions of the placenta throughout all trimesters.</li> <li>list sonographic measurements of the fetus during the first, second, and third trimester.</li> </ol> |
| <u>CS</u>                 | <ul style="list-style-type: none"> <li>identify breast layers and structures as visualized in cross-sectional ultrasound imaging.</li> <li>describe the physiological functions of breast tissue components.</li> <li>differentiate normal breast anatomy from pathological variations on ultrasound.</li> </ul>                                            | <ol style="list-style-type: none"> <li>determine sonographic cross-sectional anatomy and functions of the female breast.</li> </ol>                                                                                                        |
| <u>CS</u>                 | <ul style="list-style-type: none"> <li>locate and identify extracranial cerebrovascular structures on gray-scale ultrasound.</li> <li>identify major peripheral arterial and venous structures using anatomical landmarks.</li> <li>demonstrate correct labeling of vascular anatomy on ultrasound images.</li> </ul>                                       | <ol style="list-style-type: none"> <li>identify normal sonographic anatomy of the extracranial cerebrovascular and peripheral vascular systems.</li> </ol>                                                                                 |
| <u>CS</u>                 | <ul style="list-style-type: none"> <li>explain the purpose and principles of gray scale imaging in vascular assessment.</li> <li>describe the role of color Doppler in evaluating blood flow direction and velocity.</li> </ul>                                                                                                                             | <ol style="list-style-type: none"> <li>differentiate how gray scale ultrasound, color Doppler and spectral Doppler are used in the evaluation of Vascular systems.</li> </ol>                                                              |

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|  | <ul style="list-style-type: none"> <li>interpret spectral Doppler waveforms for assessment of vascular resistance and hemodynamics.</li> <li>compare the strengths and limitations of each modality in vascular evaluation.</li> </ul> |  |
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#### G. SPECIAL INFORMATION:

This course may require use of the Internet, the submission of electronically prepared documents and the use of a course management software program. Students who have a disability and need accommodations should contact Accessibility Services at the beginning of the semester. This information will be made available in alternative format, such as Braille, large print, or current media, upon request.

#### H. COURSE CODING INFORMATION:

Course Code X/Class Maximum 20; Letter Grade

Revision date:

AASC Approval date: 05/12/26

\*These five MnTC Goals have been identified as Riverland Community College Core Themes. Every course in the Riverland Community College curriculum shall meet outcomes from one of these themes.

\*\*These five MnTC Goals have been identified as Riverland Community College Disciplines. Riverland's MnTC courses also shall meet outcomes from a Discipline Area.

NOTE: The Minnesota Transfer Curriculum "10 Goal Areas of Emphasis" are reflected in the five required discipline areas and five core themes noted in the Riverland Community College program of study guide and/or college catalog.

| <b>*Riverland Community College Core Themes</b> | <b>MnTC Goal Number</b> |
|-------------------------------------------------|-------------------------|
| Critical Thinking (CT)                          | <b>2</b>                |
| Human Diversity (HD)                            | <b>7A, 7B, 7A/B</b>     |
| Global Perspective (GP)                         | <b>8</b>                |
| Ethical and Civic Responsibility (EC)           | <b>9</b>                |
| People and the Environment (PE)                 | <b>10</b>               |

| <b>**Riverland Community College Discipline Areas</b> | <b>MnTC Goal Number</b> |
|-------------------------------------------------------|-------------------------|
| Communication (CM)                                    | <b>1</b>                |
| Natural Sciences (NS)                                 | <b>3</b>                |
| Mathematics/Logical Reasoning (MA)                    | <b>4</b>                |
| History and the Social & Behavioral Sciences (SS)     | <b>5</b>                |
| Humanities and Fine Arts (HU)                         | <b>6</b>                |