

Embryology

Course Description

Anatomy studies the structure of body parts and their relation to one another. Subdivisions of anatomy include Gross (Macroscopic) Anatomy, Histology (Microscopic) Anatomy, and Embryology (Developmental Anatomy). This 3-credit, on-line graduate course (Embryology, MSBS 5075S) is designed to provide a basic foundation in human embryology to graduate students who are pursuing studies in the biomedical sciences. Knowledge of gross anatomy is useful for this course, but not a pre-requisite.

In this course, students explore human prenatal development from fertilization to birth. This course focuses on the morphological changes that take place during development. Underlying molecular mechanisms and relevant congenital anomalies may be briefly considered. The first unit (of three in this course) focuses on embryogenesis, the embryonic development that takes place during the first month after fertilization. The second and third units mainly focus on organogenesis, the development of the individual organ systems.

Course Objectives

By the end of this course, students should be able to:

- Explain the major events related to early embryogenesis including fertilization, implantation, gastrulation, neurulation and body folding.
- Describe the major events related to organogenesis and associate embryonic derivatives that form adult structures.
- Relate defects in prenatal development to congenital anomalies.

Required Materials

- Sadler TW, *Langman's Medical Embryology*. Wolters Kluwer/Lippincott Williams & Wilkins Co.
- Podcasts, readings, slides, and quizzes in course website.

Course Format

There are three units in this course. The first unit focuses on embryogenesis, the embryonic development that takes place during the first month after fertilization. The

second and third units mainly focus on organogenesis, the development of the individual organ systems. Each unit consists of four topic modules made up of on-line podcasts with associated readings and formative quizzes. Modules (4 per unit, 12 in total) are self-paced and students are strongly encouraged to regularly keep up with content, take notes (from podcasts, readings, text), and contact the instructor if there are questions. At the end of each unit, there is an exam. All assessments must be submitted by deadlines provided on the course website using eastern standard time. Upon completion of a unit exam, course materials for the following unit will be released for student access. Please see the section on grading policy for details on required assessments/assignments.