Human Embryology (ANAT 130) Syllabus

Course Director
Kurt E. Johnson, Ph.D.
Professor of Anatomy and Regenerative Biology

Faculty
R. Hawley, Ph.D.
K. Johnson, Ph.D.
S. Moody, Ph.D.

The course will consist of 22 lectures, 2 labs, and 2 exams.

Part I-Developmental Mechanisms and Early Human Development

Lecture 1 Introduction to Human Embryology
Lecture 2 Genetics of Pattern Formation-**Moody**
Lecture 3 Signaling Molecules-**Moody**
Lecture 4 Gametogenesis, Fertilization, Cleavage
Lecture 5 Human Assisted Reproductive Technologies
Lecture 6 Gastrulation and Neurulation
Lecture 7 Neural Crest Development
Lecture 8 Extracellular Matrix and Directed Cell Migration
Lecture 9 Induction and Organogenesis
Lecture 10 Nervous System Development/Morphology
Lecture 11 Mechanisms of CNS Development-**Moody**

Lab I Demonstration of Embryonic Models, Computer Programs, and Microscopic Specimens

Exam I

Part II Development of Human Organ Systems

Lecture 12 Cardiovascular System
Lecture 13 Respiratory System
Lecture 14 Gastrointestinal System
Lecture 15 Endocrine System
Lecture 16 Urogenital System
Lecture 17 Mechanisms of Sex Determination

Lab II Organogenesis/Digitized Specimens of Human Embryos, Computer Programs

Part III Congenital Birth Defects/Future Prospects for Cures

Lecture 18 Congenital Birth Defects I-Range of Morphological Defects
Lecture 19 Congenital Birth Defects II-Etiology
Lecture 20 Congenital Birth Defects III-Genetic Mechanisms
Lecture 21 Experimental Human Embryology-Ethics-Blastomere biopsy
Lecture 22 Embryonic Stem Cells-Technology and Ethics-**Hawley**

Final Exam

Laboratory Sessions:
Laboratory sessions will be conducted by Dr. Johnson, demonstrating embryology models, showing computer-based animation packages, and helping students view digitized microscopic specimens of human embryonic material.

Textbook:
Langman's Medical Embryology by T.W. Sadler, 8th edition (or most recent edition) (ISBN 0-683-30650-2)

Course Credits:
3 credit hours, meeting twice/week on Tuesday and Thursday, 75 minutes/class.