



EDO UNIVERSITY IYAMHO

Anatomy Department

ANA 201 General Embryology

Instructor: *Dr. Odetola Amos A.*, email: odetola.amos@edouniversity.edu.ng

Lectures: Friday, 10 am- 12pm, LT1, phone: (+234) 8032072958

Office hours: Thursday, 1.30 to 2.30 PM, Office:

General overview of lecture: The course introduces some fundamental concepts in developmental anatomy including molecular regulation and signaling, gametogenesis, pre-fertilization, fertilization, cleavage, implantation, bilaminar germ disc and gastrulation (Trilaminar germ layer stage).

Prerequisite: The students are expected to have a strong background in the basic biology, particularly about the reproductive system.. Some knowledge of genetics will be of great importance in understanding some concepts of teratology.

Learning outcomes: At the completion of this lecture, students should be able to:

- “ Enumerate various regulatory molecules that are involved in organogenesis
- “ describe the cell division
- “ mention the source of the primordial germ cells
- “ state the incident or occurrences during the 2nd week of development
- “ explain ovarian cycle, fertilization, cleavage and implantation in details
- “ understand the principles of teratology

Assignments: students are going to have three (2) individual and one (1) group assignments throughout the course in addition to a Mid-Term Test and a Final Exam. Assignments are organized and structured as preparation for the midterm and final exam, and are meant to be a studying material for both exams.

Grading: We will assign 10% of this class grade to homeworks, 10% for the programming projects, 10% for the mid-term test and 70% for the final exam. The Final exam is comprehensive.

Textbook: The recommended textbook for this class are as stated:

Title: Langman's Medical Embryology

Author: T.W. Sadler

Publisher: Wolters Kluwer Health

ISBN: 978-1-4511-9164-6

Title: Larsen's Human Embryology
Authors: Gary C.S., Steven B.B., Philip R.B., and Philippa H.F.
Publisher: Churchill Livingstone
ISBN: 978-1-4557-0684-6

Title: The Developing Human, Clinically Oriented Embryology 8th Ed.
Author: K.L. Moore and T.V.N.Persaud
Publisher: Saunders

Courseware: ANA 201 General Embryology

The following documents outline the courseware for the course ANA 213 General Embryology. Much of this material is taken from recommended text books.

1: Introduction to Molecular Regulation and Signaling

- Gene Transcription
- Other regulation of gene expression
- Induction and Organ formation
- Cell signaling
- Key Signaling Pathways for Development

2: Gametogenesis:

- What is Gametogenesis?
- What is gamete and why the study of gamete?
- Primordial Germ Cells
- Chromosomal theory of inheritance
- Morphological changes during maturation of the gametes: Spermatogenesis & Oogenesis

3: First week of Development.

- Ovarian cycle
- Fertilization
- Cleavage
- Blastocyst formation

4: Second Week of Development: Bilaminar Germ Disc

- Differentiation of trophoblast into cytotrophoblast and syncytiotrophoblast
- Development of foetal membranes
- Formation of two cavities: Amniotic and Chorionic cavities
- Formation of somatic and splanchnic mesoderm

5: Third Week of Development

- Gastrulation: formation of embryonic mesoderm and endoderm
- Formation of the Notochord
- Establishment of the body axes
- Growth of the embryonic disc

6: 3rd to 8th Week of Development

- Derivatives of Ectodermal Germ Layer

- Derivatives of Mesodermal Germ Layer
- Derivatives of Endodermal Germ Layer
- Patterning of the Anteroposterior Axis

