

BIOLOGY 3663 (ON-LINE )  
HUMAN EMBRYOLOGY  
THIS SEMESTER

**NOTE FOR ON LINE SECTION (No attendance required):** All course materials and performance assessments will be completed and administered entirely on-line through the world wide web internet and via WebCT software of UTSA ([webct.utsa.edu](http://webct.utsa.edu)). The introductory lecture on the syllabus and all lectures are recorded and posted on the WebCT Homepage as streaming video. All performance assessments, e.g., exams and quizzes, will be administered on line beginning the date posted on the WebCT Calendar, i.e., exams or quizzes; also an email will be sent via WebCT Mailbox to all enrolled students notifying them of availability and end date/time for completion of on-line assessment materials. All lecture presentations will be posted, e.g., Powerpoint and pdf slides, and pdf handouts for printing, on the WebCT course site. All correspondence will be conducted via the WebCT Mailbox function on the course site. Grades are posted automatically upon completion of performance assessment materials. Final grades are posted subsequent to the administration of the final exam.

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**PREREQUISITES:** BIO1203 (Biology I), BIO1223 (Biology II), BIO1212 (Biology Lab)

**REQUIRED TEXT:** The Developing Human: Clinically Oriented Embryology, by Keith L. Moore and T.V.N. Persaud, most recent edition, W.B. Saunders Co., Philadelphia.

**COURSE DESCRIPTION:** Embryology is the study of development. It starts from the point of fertilization of a mature oocyte by a mature spermatozoan. It concludes with the birth of the mature fetus. This differs from growth, which is a continuous process from fertilization through death. We will study the development of the human embryo and will include clinical applications of importance to medicine. We will touch on some of the molecular mechanisms involved in embryonic development. An understanding of the origin of various tissues and organs will give the student a more complete background in the normal anatomy and physiology of the adult human.

**COURSE OBJECTIVES:** After completion of this course, students should be able to:

- Clearly understand the origin of the tissues, organs, and organ systems in the human embryo and fetus
- Have a knowledge of the timeframe of human developmental changes
- Appreciate the mechanisms required for tissue specialization and differentiation
- Understand environmental and genetic factors which may impede or impair human development

## COURSE OUTLINE

<u>DAY</u>	<u>TOPIC</u>	<u>TEXT (pp.)</u>
(1)	(1) Introduction, Definitions, Anatomical Position & Terminology	Cpt 1 (2-9 13-14)
(2)	(2) Histology of Sperm and Egg; Meiosis	Cpt 2 (18-21)
(3)	(3) Gametogenesis	Cpt 2 (22-24 32-34)
(4)	(4) Histology & Anatomy of Female Reproductive System; Menstrual Cycle	Cpt 2 (24-32)
(5)	(5) Week 1 of Development: Fertilization	Cpt 2 (34-40)
(6)	(6) Week 2 of Development: Cleavage Implantation, Bilaminar Disc and Extraembryonic Structures	Cpt 3 (41-44, 48-61)
(7)	(7) Week 3 of Development: Embryonic Period and Trilaminar Germ Disc (CENSUS DAY: LAST DAY TO WITHDRAW WITHOUT A GRADE)	Cpt 4 (64-71)
(8)	(8) Neurulation, Body Cavities, Early Cardiovascular System	Cpt 4 (72-80)
(9)	(9) Folding and Embryonic Development	Cpt 5 (84-90)
(10)	(10) Staging of the Embryo: Weeks 4-8	Cpt 5 (90-101)
(11)	(11) Summary of the Fetal Period	Cpt5(101-104) Cpt6(108-125)
(12)	EXAM I (Cpts 1-6; Lecs 1-11)	
(12)	(12) Placenta and Membranes	Cpt 7(130-140 150-154,162-164)
(13)	(13) Labor, Childbirth and Complications	Cpt 7 (140-149)
(14)	(14) Multiple Births	Cpt 7 (154-162)
(15)	(15) Cavities	Cpt 9 (202-213)

- (16) (16) Pharyngeal Apparatus I Cpt 10 (216-225)
- (17) (17) Pharyngeal Apparatus II Cpt 10 (225-227,  
230-233, 236-242)
- (18) (18) Pharyngeal Apparatus III Cpt 10 (245-254)
- (18) EXAM II (Cpts 7,9,10; Lecs 12-18)
- (19) (19) Respiratory System I Cpt 11 (258-262)
- (20) (20) Respiratory System II Cpt 11 (263-268)
- (21) (21) Digestive System I: Foregut  
and Mesenteries Cpt 12 (272-276)
- (22) (22) Digestive System II: Duodenum  
Liver, Pancreas and Spleen Cpt 12 (276-283)
- (23) (23) Digestive System III: Midgut,  
Hindgut and Rotation of the Gut Cpt 12 (283-300)
- (23) EXAM III (Cpts 11-12, Lecs 19-23)
- (24) (24) Urogenital System I: Urinary  
System, Adrenal Glands Cpt 13 (304-315,  
319-322)  
(DROP DAY: LAST DAY TO DROP WITH A GRADE OF "W")
- (25) (25) Urogenital System II: Primary  
Sex Organs Cpt 13 (323-328)
- (26) (26) Urogenital System III: Secondary  
Sex Organs Cpt 13 (328-333,  
341-345)
- (27) (27) Cardiovascular System I:  
Early Heart Development Cpt 14 (350,  
358-361)
- (28) (28) Cardiovascular System II:  
Early Vascular Development Cpt 14 (350-358)
- (29) (29) Cardiovascular System III:  
Maturation and Partitioning of the Heart Cpt 14 (365-371)
- (30) (30) Heart Defects Cpt 14 (372-384,  
389-396, 397-398)

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| (31) | (31) Skeletal Development  | Cpt 15 (406-419)                     |
| (32) | (32) Limbs   | Cpt 15 (420-422)<br>Cpt 17 (434-449) |
| (33) | (33) Nervous System I: Spinal Cord   | Cpt 18 (452-465)                     |
| (34) | (34) Nervous System II: Brain  | Cpt 18 (465-483)                     |
| (35) | (35) Nervous System III: PNS   | Cpt 18 (483-486)                     |
| ()   | FINAL EXAM<br>(Covers chapters 14-18, lectures 24-35; ALSO CUMMULATIVE 1-23) |                                      |

EXAM SCHEDULE:

EXAM I	Week 4
EXAM II	Week 6
EXAM III	Week 10
FINAL EXAM	Finals Week

**!!!!!!!SCHOLASTIC DISHONESTY OF ANY KIND WILL NOT BE TOLERATED!!!!!!!**

*Scholastic dishonesty includes, but is not limited to*

- *Cheating on a test or other class work*
- *Plagiarism (the appropriation of another's work and the unauthorized incorporation of that work in one's own written work offered for credit)*
- *Collusion (the unauthorized collaboration with another person in preparing college work offered for credit)*
- ***Using textbook or notes (or any material whatsoever) to complete on line exams.***

GRADING POLICY:

Exams:

Three exams of 50 questions each, 2 points per question. Each exam will be worth 100 points, for a total of 300 points. Questions will be matching, true/false, and multiple choice.

Final Exam:

The final exam will be comprehensive over the final 9 lectures of the semester and cumulative over lectures 1 through 23. It will consist of 100 questions, 2 points per question. The final will be worth a total of 200 points. The format will be the same as all previous exams.

Make-up Exams:

*Makeup exams will NOT be available!!!!!!!*

Grading Criteria:

<u>GRADE</u>	<u>PERCENTAGE</u>	<u>SCORE IN POINTS</u>
A	89.5-100	448-500 points
B	79.5-89.4	398-447 points
C	69.5-79.4	348-397 points
D	59.5-69.4	298-347 points
F	59.4 and below	≤ 297 points