

D H 300B: ORAL BIOLOGY II

Foothill College Course Outline of Record

Heading	Value
Effective Term:	Summer 2021
Units:	3
Hours:	3 lecture per week (36 total per quarter)
Advisory:	Not open to students with credit in D H 52B.
Degree & Credit Status:	Degree-Applicable Credit Course
Foothill GE:	Non-GE
Transferable:	CSU
Grade Type:	Letter Grade Only
Repeatability:	Not Repeatable

Student Learning Outcomes

- The student will be able to trace the origin of mature oral tissues back to the trilaminar disc.
- The student will be able to list the origin and formation of enamel.

Description

The embryologic development of the structures and tissues of the head, neck, teeth and oral cavity; histology of the hard and soft tissues of the oral cavity. Anatomy of the tooth crown, root and pulp; development and structural defects involving the oral cavity and the teeth. The normal periodontal tissues, oral mucous membranes, and salivary glands. Intended for students in the Dental Hygiene Baccalaureate Degree Program; enrollment is limited to students accepted in the program.

Course Objectives

The student will be able to:

- Illustrate and describe a cell and its components.
- Categorize the components and function of the four basic tissues of the body.
- Classify the developmental stages of the human from fertilization to birth.
- Discuss the mechanism involved in the development of the face and oral cavity.
- Describe the types of facial and oral developmental anomalies.
- Explain the stages of tooth development, and describe the characteristic activities of each stage.
- Identify and compare the dental tissues under a microscope.
- Identify and compare the histologic components of the periodontium and oral mucous membranes.

Course Content

- Cells and components
 - Cell
 - Cell membrane
 - Composition
 - Components
 - Function
 - Nucleus
 - Composition
 - Components

- Function
 - Organelles
 - Composition
 - Components
 - Function
 - Intercellular junctions
 - Types
 - Extracellular materials
 - Composition
 - Components
 - Function
 - Basic tissues of the body
 - Epithelium
 - Classification
 - Histology
 - Turnover and repair
 - Basement membrane
 - Composition
 - Histology
 - Connective tissue
 - Types
 - Composition
 - Histology
 - Connective tissue repair
 - Cartilage
 - Types
 - Composition
 - Histology
 - Bone
 - Types
 - Composition
 - Histology
 - Muscle tissue
 - Types
 - Composition
 - Histology
 - Nerve tissue
 - Types
 - Sympathetic nervous system
 - Parasympathetic nervous system
 - Composition
 - Histology
 - The processes and stages of early embryologic and fetal development
 - Fertilization
 - Morula
 - Blastocyst
 - Embryo
 - Bilaminar disc
 - Trilaminar
 - Ectoderm
 - Mesoderm
 - Endoderm
 - Neuroectoderm
 - Fetus
 - The formation and organization of the structures of the head, neck and oral cavity
 - Frontonasal process
 - Medial nasal process
 - Lateral nasal process
 - Stomatodeum
 - Oropharyngeal membrane
 - Branchial arches

- a. Types
- b. Future development
- c. Branchial arch pouches
- d. Branchial arch grooves
- 5. Mandibular process
 - a. Future development
- 6. Maxillary processes
 - a. Future development
- 7. Frontal process
 - a. Future development
- 8. Lateral palatine processes
 - a. Future development
- E. Facial and oral anomalies
 - 1. Cleft lips
 - 2. Cleft palates
 - 3. Combined cleft lip and cleft palates
 - 4. Other facial clefts
- F. The processes and stages of tooth development
 - 1. Initiation stage
 - 2. Bud stage
 - 3. Cap stage
 - 4. Bell stage
 - a. Enamel organ
 - 1) Outer enamel epithelium
 - 2) Inner enamel epithelium
 - 3) Stellate reticulum
 - 4) Stratum intermedium
 - b. Dental papilla
 - c. Dental sac
 - 5. Apposition stage
 - a. Odontogenesis
 - b. Amelogenesis
 - 6. Maturation stage
 - 6. Root formation
 - a. Hertwig's epithelial root sheath
 - 7. Eruption
 - a. Process
 - b. Shedding of primary teeth
- G. Microscopic features of enamel, dentin, cementum, and pulp
 - 1. Enamel
 - a. Enamel rods
 - b. Enamel lamellae
 - c. Enamel tufts
 - 2. Dentin
 - a. Dentin tubules
 - b. Tomes granular layer
 - c. Acellular cementum
 - d. Cellular cementum
 - e. Sharpey's fibers
 - 3. Pulpal zones
 - a. Pulp stones
- H. The development and histology of the gingiva, epithelial attachment, periodontal ligament, alveolar bone, and oral mucous membranes
 - 1. Gingiva
 - a. Gingival layers
 - b. Attached gingiva
 - c. Free gingiva
 - d. Junctional epithelium
 - 2. Periodontal ligament
 - a. Fibers of the periodontal ligament
 - b. Sharpey's fibers
 - 3. Alveolar bone

- a. Cribiform plate
- b. Lamina dura
- 4. Oral mucosa
 - a. Masticatory mucosa
 - b. Lining mucosa
 - c. Specialized mucosa
- 5. Salivary glands
- 6. Tongue
 - a. Types of papillae

Lab Content

Not applicable.

Special Facilities and/or Equipment

- A. Multimedia lecture room.
- B. When taught via Foothill Global Access, on-going access to computer with email software and hardware; email address.

Method(s) of Evaluation

Methods of Evaluation may include but are not limited to the following:

- Short answer and multiple choice quizzes
- Anatomy identification evaluations
- Midterm
- Final examination

Method(s) of Instruction

Methods of Instruction may include but are not limited to the following:

- Lecture
- Discussion
- Group projects

Representative Text(s) and Other Materials

Frehenbach and Popowics. Illustrated Dental Embryology, Histology, and Anatomy, 5th ed. 2021.

Types and/or Examples of Required Reading, Writing, and Outside of Class Assignments

- A. Weekly reading assignments from chapters in the textbook as well as writing assignments of review questions at the end of each chapter.
- B. Interactive exercises, including labeling/structure identification to master anatomy.

Discipline(s)

Dental Technology