El Paso Community College
Syllabus
Part II
Official Course Description

SUBJECT AREA	**Dental Hygiene**
COURSE RUBRIC AND NUMBER	**DHYG 1301**
COURSE TITLE	**Orafacial Anatomy, Histology and Embryology**
COURSE CREDIT HOURS	**3 2 : 4** **Credit Lec Lab**

I. Catalog Description

Studies histology and embryology of oral tissues, gross anatomy of the head and neck, tooth morphology, and individual tooth identification. A grade of "C" or better is required in this course to take the next course. **Prerequisite: BIOL 1308 and 1108. (2:4). Lab fee.**

II. Course Objectives

Part I Histology and Embryology

A. Unit I: Development and Structure of Cells and Tissues

1. Define histology and tissue.
2. Name the two main structures that comprise the cell.
3. Name the two main chemicals that are found in the nucleus and describe the function of each.
4. Name two cells that do not contain a nucleus and two that contain more than one nucleus.
5. List four structures found in the cytoplasm and describe the function of each.
6. List the class of chemicals that the cytoplasmic membrane is composed of.
7. Name two types of chemical messengers that the cell responds to.
8. Name two types of cell divisions and describe the purpose of each type of division.
9. Name three types of cells that are continually renewed, two types of cells that renew upon demand, and two that seldom, if ever, renew.
10. Name the three periods that occur during pre-natal development and the length of time each of these periods cover.
11. List the three main events that occur during the proliferative phase of pre-natal development.
12. List the three main events that occur during the embryonic stage of development.
13. Describe what happens to the fetus during the fetal stage of development.
14. Describe the development of the embryonic disc and name the three "derm" tissues that make up this disc.
15. Name two tissues that originate from ectoderm.
16. Name two tissues that originate from the mesoderm.
17. Name two systems and four organs that develop from the endoderm.
18. Name the "derm" layer that hair and fingernails; and mammary, sweat, sebaceous, and salivary glands are derived from.
19. Describe what "derm" layers the teeth are derived from.

B. Unit II: Structure and Function of the Cells, Tissues, and Organs

1. List the four basic tissue types and state the basic function of each type.
2. List four functions for epithelial tissues.
3. State where epithelial tissue is found in the body.
4. List the two main divisions of epithelial tissue and explain how this division is determined.
5. Describe what determines how the epithelial tissue is sub-classified within each division.
6. Describe the location of the basement membrane.
7. Locate and explain the function of the desmosome and hemidesmosome.
8. List two functions for connective tissue.
9. Name the two basic components of all connective tissue.
10. Name the two basic parts of the matrix in connective tissue.
11. Name the three basic fibers that are found in connective tissue and describe the function of each type of fiber.
12. Name four types of ground substances.
13. Name nine cells that can be present in connective tissue and give a function for each type of cell.
14. List four broad classifications for connective tissue.
15. Name the three types of connective tissue proper and give an example of each type.
16. Name the epithelial component and connective tissue component of skin or mucous membrane.
17. Name the three types of cartilage and where in the body each type is found.
18. Name the two types of bone, describe them and state where they are found.
19. Name the main cells found in blood and describe the function of the blood and lymph.
20. Name the two principle types of nerve cells and state the function of each.
21. Name the three parts of a neuron and the describe function of each part.
22. Locate and describe the function of the myelin sheath and the sheath of Schwann.
23. Name the three types of muscle cells and state where they are found in the body.
24. Describe what comprises an organ system.
25. Name eight organ systems.

C. Unit III: Oral Embryology

1. Describe the development of the oropharynx using the following terms: stomodeum (oral pit) oropharyngeal membrane, maxillary process and the mandibular arch.
2. List the number of branchial arches that develop in the embryo and tell which parts of the face and oral cavity are derived from the first, second and third branchial arches.
3. Name the first branchial arch and describe how the maxillary and mandibular processes develop from this arch.
4. Locate the frontal process of the embryo and describe how the following structures evolve from it: median nasal fold, lateral nasal fold, frontonasal process, globular process, and nasal septum.
5. Describe what parts of the mid-face develop from each of the structures listed in objective number four.
6. Describe the development of the palatal processes of the maxilla and their fusion with the premaxilla.
7. Describe where the division between the premaxilla and the palatal processes of the maxilla occurs and the significance of this in tooth development and cyst formation.
8. Describe the developmental defects that lead to facial clefts and palatal clefts.
9. Describe the embryological formation of the tongue.
10. Describe the function of Meckel's cartilage during the first four months of development, and then tell what bones are represented by it in the fully formed fetus.
11. Describe the two methods of bone development and then tell how the bones of the maxilla and mandible are formed
12. Describe how the maxilla and the mandible grow in width, length, and vertical dimension during the transition from baby to adult.

D. Unit IV: Development of the Teeth and Periodontium

1. Describe each of the following structures: dental lamina, tooth germ, bud stage, cap stage, bell stage, dental papilla, enamel organ, dental sac, and the successional dental lamina.
2. Define amelogenesis and name the cell that produces enamel and the tissue that this cell is derived from.
3. Locate and name the four layers of tissue present in the bell stage.
4. Define dentinogenesis and name the cell that produces dentin and the tissue that this cell is derived from.
5. Describe the enamel maturation process.
6. Describe the difference between hypocalcification and decalcification.
7. Describe, in detail, the development of the root of the tooth.
8. Describe the development of the periodontium and tell what embryonic tissue they are derived from.
9. Describe the formation and embryonic origin of the pulp.

E. Unit V: Eruption and Exfoliation of the Teeth

1. Explain what is meant by the eruptive process as it pertains to the teeth.
2. Name the three stages of eruption.
3. Name the part of the tooth that starts to develop during the pre-eruptive stage of tooth eruption.
4. Name the part of the tooth that begins developing during the prefunctional stage of tooth development.
5. Describe the event that brings the prefunctional stage of the tooth eruption to an end.
6 Give the approximate time it takes for primary and/or permanent teeth to complete root formation.
7. Describe what functional eruption is and tell how long it continues.
8. Describe the movement of the developing tooth buds of permanent incisors and premolars as the maxilla and mandible grow away from the brain case and tell at what stage of development this movement occurs.
9. Locate where in the maxilla or mandible the permanent molars are developing and tell which direction the occlusal surfaces of molars are facing.
10. Describe what causes the crown of the tooth to move occlusally or incisally during the prefunctional eruptive phase.
11. Describe what happens to the tissue fibers and cells that lie between the erupting tooth and the oral cavity.
12. Describe what happens to the primary tooth root when the permanent successor erupts.
13. Describe where the permanent incisors and premolars are located at the end of the preeruptive stage.
14. Describe what happens to the alveolar bone as a tooth erupts.
15. Describe how the fibers of the intermediate plexus reorient in the periodontal ligament as the tooth erupts and comes into occlusion.
16. Describe the changes that occur in the alveolar bone as the tooth becomes functional.
17. Describe the following terms and explain how they relate to the eruption and exfoliation of teeth: retarded eruption, premature eruption, submerged or any loosed teeth, and supra-eruption.

F. Unit VI: Enamel

1. Describe enamel as to color, hardness, composition and percentage mineralization.
2. Identify the main mineral in calcified enamel.
3. State whether enamel, when the tooth is in function, represents a vital or non-vital tissue.
4. List the three main structural components of enamel.
5. Give the degree of calcification for each of the following parts of enamel: the enamel rod or enamel prism and the enamel rod sheath or prismatic sheath.
6. Identify and describe: striae of Retzius or neonatal line, incremental lines, imbrication lines, perikymata, enamel lamellae, enamel tufts, enamel spindles, and the dentinoenamel junction.

7. Name and describe the two enamel cuticles and compare them to Nasmyth's membrane.
8 State at least two differences between the enamel of the primary teeth and the permanent teeth.

G. Unit VII: Dentin
1. Compare the color, composition and hardness of dentin to enamel.
2. Compare the vitality of dentin to enamel when the tooth is in function.
3. Identify and describe: dentinal fibers, dentinal tubules, predentin, incremental lines, neonatal line.
4. List the three types of dentin that can be found in a tooth.
5. Describe the difference between sclerotic dentin and dead tracts.
6. Explain the association between the sensation of pain and the dentinal tubules.

H. Unit VIII: Dental Pulp
1. Describe what type of tissue the dental pulp is made of.
2. Name the two main parts of the dental pulp and the chambers within the tooth they fill.
3. Describe the variations in the radicular portion of the pulp.
4. Describe and give the function of the following pulpal cells: odontoblast, fibroblast, macrophage, and undifferentiated cell of the pulp.
5. Describe the following structures that are associated with the pulp: predentin, odontoblastic layer & process, cell free layer, cell rich layer, and the foramen.
6. Describe the following calcifications that are found in the pulp: diffuse calification and the three types of pulp stones.
7. Describe the fate of odontoblasts when injury occurs.
8. List and describe pulpal changes that occur during the aging process.
9. Describe the changes that occur to the pulp tissues during the inflammatory process.

I. Unit IX: Cementum
1. Locate the cementum and name the two organs that it is considered a part of.
2. Name the two main functions of cementum.
3. Name the two types of cementum that are found on the root surface and describe the origin of each type.
4. Identify the origin of Hertwig's sheath and explain how the rests of Malassez could be remnants of this sheath.
5. Describe a cementicle.
6. Describe how cementicles or enamel pearls could develop from the rests of Malassez.
7. Compare cellular cementum to bone as to hardness and degree of mineralization.
8. Name two differences between bone and cementum and describe how these two differences effect how bone and cementum respond to pain and resorption.
9. Describe the variable relationship between the junction of enamel and cementum.
10. Tell where cementum is thickest on the root surface.
11. Describe Sharpey's fibers and tell how they contribute to cementum function.
12. Describe hypercementosis and explain where it most commonly is found.
13. Describe how cementum can be resorbed and repaired and differentiate between anatomic repair and functional repair.
14. Describe what can happen to cementum when the attaching fibers are stretched to the maximum.

J. Unit X: Periodontium: Periodontal Ligament
1. Locate the periodontal ligament and name the organ that it is derived from.
2. List the two main groups of fibers found in the periodontium.
3. Name the one fiber in each group that is only attached to cementum.
4. Name the gingival fiber that is not attached to either bone or cementum.
5. Discuss the function of the proprioceptive and pain sensations and their role in protecting the periodontium and tooth.

6. Explain how tooth movement can occur even though the collagen fibers that attach he cementum to the bone will not stretch.
7. Name four conditions that can effect the width of the periodontium.
8. Compare the periodontal ligament of a tooth in function with a tooth not in function.
9. Name the histological changes that can occur to periodontal tissue as a result of stress to the periodontal ligament.

K. Unit XI: Periodontium, Alveolar Process and Cementum

1. Define the term periodontium and name the four tissues that are involved in this organ.
2. Describe the functions of the following cells within the periodontium: fibroblast, cementoblast, osteoblast, osteoclast and macrophage.
3. Name the two parts of the oral cavity that the gingiva is considered a part of.
4. Describe the alveolar process and name the two parts of this process.
5. Name the two parts of the supporting bone.
6. Locate the cortical plates of the supporting bone.
7. Locate and describe basal bone.
8. Locate and describe the periosteum and endosteum.
9. Describe each of the following terms and explain what roll they play in the composition and/or function of the alveolar bone proper: lamina dura, alveolar crest, fenestration and dehiscence.
10. State the relationship between Sharpey's fibers and bundle bone.
11. Describe the anatomical configuration of the supporting compact bone using the following terms: Haversian bone, Haversian canals, lacuna, canaliculi, and Volkmann's canals.
12. Describe the supporting cancellous bone and the bone marrow spaces within this bone.
13. Describe the process for bone resorption and apposition using the following terms and cells: osteoblast, osteoclast, Howship's lacuna, and reversal lines.
14. Compare mature bone to immature bone.
15. Explain what immature bone is, describe how it would appear on a radiograph, and tell when one might see on a radiograph of an adult.
16. Explain how both resorption or apposition of bone and/or cementum occur during tooth movement or during function; include how pressure and tension effects these processes.
17. Describe what happens to the alveolar bone and cementum during the aging process or following extractions.

L. Unit XII: Oral Mucosa

1. Name the type of epithelium that lines the oral cavity.
2. Locate and describe the following components of oral epithelial tissues: epithelium, basement membrane, lamina propria and submucosa.
3. Describe the two parts of the lamina propria.
4. List the contents of the submucosa.
5. List three types of oral mucosa and tell where each type is found.
6. Describe where the submucosa is located histologically and describe it.
7. Name and locate the three strata of epithelial cells that are found in the lining epithelium.
8. Name five areas where lining mucosa is found.
9. Tell what Fordyce granules are and why they are found in the buccal mucosa.
10. Explain why the vermillian border is red in color.
11. Name and locate the types of epithelium found on the alveolar process.
12. Compare and contrast histologically, the epithelial layer of the masticator epithelium and the lining mucosa.
13. Name the cell in the epithelium that produces the melanin pigmentation.
14. Describe the blood and nerve supply in the dermis and submucosa.
15. Describe the changes that occur to the oral mucosa during the aging process.
16. Give a histologic description of the epithelium of the attached, free, sulcular, and junctional gingiva.
17. Explain how the junctional epithelium is a reminate of the reduced enamel organ.

18. Describe how the junctional epithelium is attached to the tooth surface and where it is located on the tooth surface on a child and a 40-year-old adult with healthy periodontium.)
19. Locate and describe the "col" and tell what determines its shape.
20. Compare histologically, the mucosa of the following parts of the hard palate: median raphe, rugae and the fatty area.
21. Name the three papillae that are found on the specialized mucosa of the tongue.
22. Name the papilla on the tongue that does not contain taste buds.
23. Name the areas of the oral cavity and pharynx where taste buds are found.
24. Locate where the various taste sensations are located.
25. Name the nerves that carry the taste sensation in the oral cavity.
26. Name the sensory stimuli other than taste and proprioception that are found in the oral cavity.

M. Unit XIII: Salivary Glands & Tonsils

1. Name the two general classifications of salivary glands and describe how the secretions for each type enter the oral cavity.
2. Name the three types of salivary gland secretions.
3. Describe the difference between serous and mucous secretions.
4. Locate the three pairs of major salivary glands and classify them by the their type of secretion**.**
5. Locate the five groups a minor salivary glands**.**
6. Name, by location, the various types of secretions of the minor salivary glands.
7. Locate and describe the secretions of the Von Ebner salivary glands.
8. List six functions for saliva.
9. Describe the location of the three groups of tonsils that surround the oropharynx.
10. Describe the function of the tonsils and name the one most likely to be infected.
11. Name the pair of tonsils, which are called the adenoid tonsils.

Part II Oral Anatomy

N. Unit XIV: Dental Terminology – Introduction to Oral Anatomy

1. Locate the following regions of the face: lips and cheeks, chin, infraorbital and supraorbital regions, glabella, nasion and gonion, ala of the nose and the nares, and inner and outer canthus of the eye, and tragus of the ear.
2. Locate the entrance and exit to the oral cavity.
3. Locate the boundaries of the oral cavity.
4. Name the two body systems that the oral cavity can be considered part of.
5. Name the two jaws found within the oral cavity
6. Name five functions of the oral cavity.
7. Describe the type of epithelium found on each surface of the lips, and locate the following parts of the lip, the philtrum, commissure, and vermillion border.
8. Name and locate the two divisions of the oral cavity.
   Locate the anterior, lateral, and medial borders of the vestibule.
9. Name the bone and fold found on the posterior border of the vestibule.
10. Name the structures found on each end of the ligament located on the posterior boundary of the vestibule.
11. Locate the mucobuccal and mucolabial folds and explain why the name changes as you proceed from the anterior to posterior of the mouth.
12. Locate the alveolar process (ridge) and name the main function of this ridge.
14. Locate the mucogingival junction on the alveolar ridge.
15. Describe the differences between the mucosa located on each side of the mucogingival junctions.
16. Name the mucosa on the tooth side of the mucogingival junction and name the three parts of this tissue.
17. Locate the free gingival groove, the gingival sulcus or crevice, and the crest or margin of the gingiva.

18. Locate the cheeks and describe the inner and outer surfaces covering the cheeks.
19. Locate the frenoli found in the vestibule and describe what is their function.
20. Locate the opening of the and parotid gland that is found in the vestibule.
21. Name the opening to the parotid papilla.
22. Describe Fordyce's granules and explain why they are not considered a "normal" occupant of the buccal mucosa.
23. Name the bony growths frequently found on the alveolar ridge.
24. Name the two anatomic divisions of the roof or of the mouth and locate the following structures: incisive papilla, palatine rugae, fovea palatini and uvula.
25. Name the bony growth frequently found in the midline of the hard palate.
26. Locate the posterior fauces of the oral cavity and name the two arches or pillars that occur on either side of the posterior fauces.
27. Name the antomic structure found between the two arches or pillars.
28. Name and locate the four types of papillae found on the tongue.
29. Name and locate the two parts of the tongue.
30. Locate the epiglottis, the foramen caecum, terminal sulcus, and the lingual tonsils.
31. Locate the following structures found in the floor of the mouth: lingual frenum, sublingual fold, sublingual (salivary) papilla (or caruncles), Wharton's ducts, and the ducts of Bartholin.
32. Name the bony growth frequently found on the lingual surface of the mandible.

O. Unit XV: The Dentiton

1. Name and locate the three hard tissues and one soft tissue that make up the tooth.
2. Name and locate the three junctions between the hard tissues of the teeth.
3. Compare the three hard tissues as to color and hardness.
4. Identify the cervical line of a tooth, name the junction it represents; and name the part of the tooth found on either side of this line.
5. Describe what is meant by the eruption of a tooth.
6. Name the tissue that covers the anatomic crown and the tissue that covers the anatomic root of a tooth and explain what is the difference between an anatomic crown or root and a clinical crown or root**.**
7. Explain what is meant by an anterior tooth and what is meant by a posterior tooth.
8. Name and locate the four surfaces and the edge or ridge found on the anterior teeth.
9. Locate and name the five surfaces found on posterior teeth.
10. Explain why the mesial and distal surfaces are also known as the proximal surfaces.
11. Explain why a mesial-proximal surface always touches a distal-proximal surface except in the center of the mouth and at the distal surface of the last tooth.
12. Describe how the tooth surfaces are divided into thirds and named to facilitate locating an exact spot on the tooth.
13. Locate line angles and point angles on the teeth.
14. Describe or define the following terms as they apply to the teeth: cusp and cusp slope, cingulum, lobe, developmental and supplemental groove, fossa or concavity, pits and fissures, tubercle, and mamelon.
15. Locate the following ridges on the teeth and identify which teeth have which ridges: labial, , oblique, and mesial and distal marginal ridges.
16. Explain what is the difference between an open contact and a diastema.
17. Locate and describe the contact point, contact area.
18. Locate the interproximal space and tell what normally fills this space in a healthy mouth.
20. Locate the following embrasures: incisal, occlusal, facial, lingual, and cervical or gingival.
21. Locate the facial and lingual contours, and the crest of curvature on a tooth.
21. Tell where the crest of curvature is normally found on the buccal and lingual surfaces.
22. Describe the function of the embrasures and crest of cervical curvature for maintaining a healthy dentition.
23. Name and describe the three possible variations in root forms of a tooth.
24. Locate and describe the root trunk.
25. Locate the pulp cavity and tell what occupies this space in a vital tooth.

26. Name and locate the two major parts of the pulp cavity.
27. Locate the pulp horns.
28. Locate the apical foramen and describe the variations that can occur in this structure.
29. Describe what is meant by the term dental arch and give the scientific name for each dental arch.
30. Explain what is meant by the dentition.
31. Describe what is meant by: primary, mixed and permanent dentition and tell at what ages each type of dentition is normally found in the mouth.
32. Name the four types of permanent teeth and tell which ones are considered anterior teeth and which ones are considered posterior teeth.
33. Name the three types of primary teeth.
34. Name the individual teeth in both the permanent and primary dentition.
35. Identify both the primary and permanent teeth using the Universal Identification, Palmer and FDI System.
36. Describe how the dentition is divided into quadrants.
37. Compare the number of teeth found in a quadrant of primary teeth with that of a quadrant of permanent.
38. Explain why only the permanent anterior and bicuspid teeth are considered succedaneous teeth.
39. Give another name (synonym) for each of the following terms: primary dentition, cuspid, and bicuspid and a term that can be used for either labial or buccal.

P. Unit XVI: Physiology of the Dentition; Normal Occlusion – Malocclusion

1. Define alignment and malalignment as it pertains to the teeth.
2. Describe four deviations from ideal alignment of the teeth.
3. Define occlusion and malocclusion.
4. Review the relationship of the teeth in the maxillary arch to those in the mandibular arch when the teeth are in occlusion and the alignment is normal.
5. Review or describe the following terms: Vertical relation, freeway space over closure, overjet, overbite, cross bite and open bite, and centric relation, centric occlusion, functional movements & parafunctional movements.
6. Review the classification of occlusion and malocclusion using the following terms and classifications: ideal occlusion, Angle's classification for dental relationship, and Lischer's classification for jaw relationships**.**
7. Define the following terms: curve of Wilson, and curve of Spee.
8. Explain the movements of the mandible during the act of mastication.

Q. Unit XVII: The Morphology of Individual Teeth

1. Describe the characteristics of each of the permanent teeth.
2. List the teeth that are in contact and occlusion with any given tooth.
3. List when each of the teeth (primary and permanent) start to calcify, complete crown formation and when they erupt into the mouth.
4. In general terms describe which primary dentition are normally the first to be exfoliated, when this occurs, and which teeth are the last to be exfoliated and when this occurs.
5. Compare the morphology and function of anterior teeth with that of posterior teeth.
6. Describe in detail the root morphology of all secondary teeth.
7. Tell the number and location of the pulp canals normally found in each of the teeth.

R. Unit XVIII: Dental Anomalies

1. Define the term dental anomalies.
2. Identify the teeth most frequently missing in order of occurrence.
3. Identify the teeth most frequently showing variation in form.
4. Identify the areas in the mouth where supernumerary teeth most frequently occur in order of this occurrence.
5. List, in order, the frequency of occurrence of supernumerary teeth.

S. Unit XIX: Head and Neck Anatomy – Skull

1. Explain what the difference is between the neurocranium and the viscerocranium.
2. Name and identify the eight bones that make up the neurocranium and the fourteen bones that make up the viscerocranium and tell which bones are paired and which ones are unpaired.
3. Locate the cortical plates and medullary parts of a bone.
4. Describe the differences between a foramen, bony canal, and a fissure.
5. Identify all of the bones of the skull that can be seen on the anterior view of the skull to include the bones that are visible in the orbit and nasal cavity.
6. Identify all of the landmarks that can be seen on the anterior view of the skull.
7. Identify all of the bones of the skull that can be seen on the lateral view of the skull.
8. Locate the zygomatic arch and identify the two processes that make up this arch.
9. Identify all of the landmarks that can be seen on the lateral view of the skull.
10. Identify all of the bones of the skull that can be seen on the inferior view of the skull.
11. Identify all of the landmarks that can be seen on the inferior view of the skull.
12. Identify all of the bones that can be seen in the floor of the cranial cavity.
13. Identify all of the landmarks that can be seen in the floor of the cranial cavity.
14. Identify all of the bones and landmarks that can be seen from the superior view of the skull.
15. Locate the sphenoid bone and state whether it is paired or unpaired.
16. Locate on a skull in the laboratory and from pictures the following parts of landmarks on the sphenoid; pterygoid process with lateral and medial plates, greater and lesser wings, body, sella turcica, optic, rotundum, ovale, and spinsum foramina, superior orbital fissure, and the pterygoid hamulus.
17. Name the bone that supports the teeth.
18. Identify the only freely movable bone in the skull and state whether it is paired or unpaired.
19. Name the two major parts of the mandible.
20. Identify the following parts of the ramus of the mandible: angle, condylar process and condyle, coronoid process, mandibular notch (also sigmoid or semilunar notch), mandibular (inferior alveolar) foramen, and the lingula. Identify on a skull in the laboratory).
21. Identify the following parts of the body of the mandible: mental protuberance, alveolar process, mental foramen, external and internal oblige, sublingual and submandibular fossae, retromlar triangle, and the genial tubercles. (Identify on a skull in the laboratory).
22. Locate the maxilla, and state whether it is paired or unpaired.
23. Locate and describe the body and the four processes of the maxilla.
24. Identify the following parts or landmarks on the maxilla: anterior nasal spine, canine eminence, canine fossa, incisive fossa, maxillary sinus, infraorbital foramen, maxillary tuberosity, nasopalatine or incisive foramen, and median palatine suture.
25. Identify the bones and landmarks seen through the anterior view of the nasal aperature.
26. Identify the cartilage, bones seen in the midsagittal section at the lateral wall of the nasal cavity.
27. Identify the structures and bones seen in a sagittal section at the lateral wall of the nasal cavity.
28. Locate the opening between the maxillary sinus and the nasal sinus in the lateral wall of the nasal cavity and note how infections could spread through this opening.
29. Name and locate the four paranasal sinuses and describe the functions of these sinuse.

T. Unit XX - Human Musculature and Muscles of the Head and Neck

1. Review what the origin, insertion and action of a muscle means.
2. Name the four pairs of muscles of mastication, and give the origin, insertion and action of each.
3. List the muscles responsible for each of the following movements of the mandible: elevation, depression, lateral movement, protusion, and retrusion.
4. Describe the diagastric muscle to include its nerve supply and actions of each of its bellies.
5. Name what group of muscles the mylohyoid belongs to, what part of the oral cavity it forms and the two actions it can perform.

6. Describe how the suprahyoid muscles and the infrahyoid muscles work together to either depress the mandible or elevate the floor of the mouth.
7. Describe which groups of muscles are responsible for the movement of the lips and cheeks and for the facial expression.
8. Locate the origins of the buccinator muscle and give two functions for this muscle.
9. Describe the actions of the muscles of the soft palate.

U. Unit XXI: Temporomandibular Joint and the Salivary Glands

1. Locate, on a skull, each of the following components of the temporomandibular joint (TMJ): mandibular (glenoid) fossa; articular tubercle; mandibular condyle; articular (capsular) ligament; articular disk or meniscus; temporomandibular, sphenomandibular,and stylomandibular ligaments; and the external pterygoid muscle attachements.
2. Describe the articular disk, describe where it is located when the mandible is at rest, and its movement during the various movements of the joint.
3. Describe the two types of movements that the temporomandibular joint capable of performing.
4. Describe what happens during subluxation (dislocation) of the TMJ.
5. Describe the development of the TMJ from infancy to the adult.

V. Unit XXII: Head and Neck Anatomy; Cardiovascular System and Blood Vessels & Lymph Drainage

1. Trace a drop of blood through the circulation of the body.
2. Name the major divisions of the ascending and descending aorta
3. Name and describe the functions of the chambers of the heart.
4. Describe the functions of the heart.
5. Name the two main divisions of the common carotid artery.
6. Name the area of the skull supplied by the internal carotid artery.
7. Know what area of the head each of the following branches of the external carotid artery supply blood to: lingual, maxillary, and the temporal arteries.
8. Name the branches of the maxillary artery that supply the maxillary teeth and palate.
9. Name the veins responsible for draining the various anatomic structures of the face.
10. Describe and locate the pterygoid plexus of veins.
11. Name the large vein in the neck that drains the head.
12. Name the four groups of lymph channels that drain the face and tell which area each group drains.

W. Unit XXII: Head & Neck Anatomy – Nerves and Techniques for Administering local Anesthesia

1. Name the 12 cranial nerves. Describe whether they are afferent (sensory), efferent (motor) and mixed nerve fibers.
2. Define the Autonomic nervous system- its divisions.
3. List by name and number, the four cranial nerves the supply afferent and efferent nerves to the tissues of the face and oral cavity.
4. Name the ganglia that is associated with the V Cranial Nerve.
5. List, by name and number, the three main divisions of the Trigeminal nerve and name the foramina that each branch uses to exit the cranial cavity.
6. Name the area of the face and scalp supplied with sensory innervation by the Ophthalmic branch of the trigeminal nerve. List the three principal branches of the Infraorbital nerve.
7. Name the branches of the infraorbital nerve.
8. Describe the main purpose of local anesthesia and explain the difference between a block and infiltration anesthesia.
9. Name the teeth and gingiva innervated by the posterior superior, middle superior, and anterior superior alveolar nerves and describe the procedure for injecting local anesthetic to these areas.
11. Name the nerve that innervates the posterior portion of the palate including the posterior palatal gingiva and describe where to inject a local anesthetic to block the pain impulses in this area.

12. Name the nerve that innervates the anterior portion of the palate including the anterior palatal gingival and describe where to inject a local anesthetic to block pain impulses in this area.
13. Name the area of the face innervated by the motor branches of the Mandibular nerve.
14. Name the group of muscles innervated by the motor branches of the Mandibular nerve.
15. Name the branch of the mandibular nerve providing sensory innervation to The Mandibular teeth and facial gingiva and describe how to inject a block anesthetic to this nerve.
16. Name the nerve providing pain sensation to the tongue and lingual gingiva and describe the procedure for providing a block anesthetic to this area.
17. Name the nerve that supplies sensory innervation to the mucosa of the cheek and buccal gingiva in the second and third mandibular area, and then describe how the gingival area may be anesthetized.
18. Name the tissues that the terminal branches of the inferior alveolar nerve innervate and then describe where an anesthetic solution could be placed to provide anesthesiato this area.
19. Name the group of muscles supplied by different branches of the Facial nerve.
20. Name the two salivary glands that are supplied with parasympathetic fibers through the VII (Facial) Cranial nerve.
21. Name the afferent branch of the Facial nerve that supplies the taste sensation for the anterior two thirds of the tongue.
22. Name the area of the tongue that the IX Cranial nerve supplies taste sensation for and state what type of taste is detected in that area.
23. Name the salivary gland that is supplied by the parasympathetic efferent fibers of the Glossopharyngeal nerve (IX). Name the group of muscles that are innervated by the XII Cranial nerve.

X. Unit XXIV: Salivary Glands, Nose, and Nasal Cavities
Name and locate the three pairs of major salivary glands, their openings into the oral cavity, and the principle type of secretion for each gland.

LABORATORY SECTION

A. Unit I: Oral Anatomy and Dental Anatomy

1. Identify oral anatomical structures on models.
2. Identify the supporting structures of the teeth.
3 Using the Universal Numbering System identify both primary and permanent teeth on models.
4. Identify the tissues of the tooth.
5. Identify tooth anatomical parts, surfaces, and contact.
6. Using correct terminology, locate any structure in the oral cavity.
7. Classify occlusion and malocclusion using both Angle's and Lascars method of classification on articulated models.

B. Unit II: Identification of Primary and Permanent Teeth

Identify by name any extracted tooth.

C. Unit III: Bones and Landmarks of the Skull

Identify the bones and anatomic landmarks on a skull.

III. THECB Learning Outcomes (WECM)

1. Identify the histological and embryological development of the orofacial structures.
2. Locate the major structures of the head and neck.
3. Compare and contrast various teeth including the crown and root morphology.

IV. Evaluation

A. Condition of performance course divided into two sections.

1. Theory

a. Oral Facial Anatomy comprises 1/3 of the final grade
b. Histology and Embryology comprises 1/3 of the final grade

There will be seven supervised written examinations from learning units, given at scheduled time.

There may be unannounced daily quizzes covering the previous lecture. The total of all the daily quizzes will be worth 10% of the final grade.

There will be comprehensive final exams in both oral anatomy and histology and embryology during the regularly scheduled final exam week.

2. Laboratory comprises 1/3 of the final grade
There will be two supervised scheduled laboratory exams.
There may be unannounced daily quizzes covering the previous lecture.
The total of all the daily quizzes will be worth 10% of the final grade.

B. Grading Scale

A = 93 – 100
B = 83 – 92
C = 75 – 82
A student will receive an "F" for any average below 75%.

C. Student must make a "C" or better to remain in the Dental Hygiene Program.

V. Disability Statement (American with/Disabilities Act [ADA])

EPCC offers a variety of services to persons with documented sensory, mental, physical, or temporary disabling conditions to promote success in classes. If you have a disability and believe you may need services, you are encouraged to contact the Center for Students with Disabilities to discuss your needs with a counselor. All discussions and documentation are kept confidential. Offices located: VV Rm C-112 (831-2426); TM Rm 1400 (831-5808); RG Rm B-201 (831-4198); NWC Rm M-54 (831-8815); and MDP Rm A-125 (831-7024).

VI. 6 Drop Rule

Students who began attending Texas public institutions of higher education for the first time during the Fall 2007 semester or later are subject to a 6-Drop limit for all undergraduate classes. Developmental, ESL, Dual Credit and Early College High School classes are exempt from this rule. All students should consult with their instructor before dropping a class. Academic assistance is available. Students are encouraged to see Counseling Services if dropping because exemptions may apply. Refer to the EPCC catalog and website for additional information.