

Orofacial Anatomy, Histology and Embryology

**Lamar Institute of
Technology**

DHYG 1301

Course Syllabus

SUMMER II, 2021

Taught by:
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**Orofacial Anatomy, Histology and Embryology (DHYG 1301)
Summer II**

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Unit	Week	Date	Topic	Activities/Assignment Due Dates @11:59pm CST Activities may be submitted early
START HERE	Pre- semester		Orientation to course Virtual Office – Live Session via Bb Collaborate	<ol style="list-style-type: none"> Attend Bb Collaborate Session at 6:00 pm Read LIT Dental Hygiene Student Handbook Read Risk Management Policy and Procedures Manual and complete test. Watch: Study Tips from LIT DH Students Discussion: Self- Introduction with photo Subscribe to the Virtual Office Discussion Forum
LECTURE: Units 1, 2, 3 LAB: Unit 4	Week 1		<p>LECTURE:</p> <ol style="list-style-type: none"> Introduction to Head and Neck Anatomy Surface Anatomy Glandular Tissue <p>LAB:</p> <ol style="list-style-type: none"> Bones of the Head and Neck <p>LECTURE EXAM</p>	<p>LECTURE:</p> <ol style="list-style-type: none"> Read: Illustrated Anatomy of the Head and Neck (IAHN) Chapters 1,2, 7, Read: Illustrated Dental Embryology, Histology and Anatomy (IEHA) Chapters 1, 2, 11 <p>LAB:</p> <ol style="list-style-type: none"> Read: Illustrated Anatomy of the Head and Neck (IAHN) Chapter 3

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Unit	Week	Date	Topic	Activities/Assignment Due Dates @11:59pm CST Activities may be submitted early
LECTURE: Units 15, 16, 17, 18 LAB: Unit 11	Week 4	July 27- Aug 2	LECTURE: <ol style="list-style-type: none"> Orofacial Structures Gingival and Dentinogingival Functional Tissues Enamel Dentin and Pulp LAB: <ol style="list-style-type: none"> Primary/Deciduous Teeth (Anterior and Posterior) LECTURE EXAM:	<u>DUE Monday, August 2</u> LECTURE: <ol style="list-style-type: none"> Read: Illustrated Dental Embryology, Histology and Anatomy (IEHA) Chapters 7, 9, 10, 12, 13 LAB: <ol style="list-style-type: none"> Read: Illustrated Dental Embryology, Histology and Anatomy (IEHA) Chapter 18
LECTURE: Units 19, 20 LAB: Unit 14	Week 5		LECTURE: <ol style="list-style-type: none"> Periodontium: Cementum, Alveolar Process, Periodontal Ligament Occlusion TMJ 	<u>DUE Monday, August 9</u> LECTURE: <ol style="list-style-type: none"> Read: Illustrated Dental Embryology, Histology and Anatomy (IEHA) Chapters 14, 19, 20 Read: Illustrated Anatomy of the Head and Neck (IAHN) Chapter 5
LECTURE LAB	Week 6		LAB EXAM LECTURE EXAM	

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PREREQUISITE/ CO-REQUISITE COURSES

Admittance to the dental hygiene program.

COURSE DESCRIPTION

A study of histology and embryology of oral tissues, gross anatomy of the head and neck, tooth morphology, and individual tooth identification.

COURSE GOALS

1. Locate the major structures of the head and neck.
2. Describe in detail the development of facial structures.
3. Describe all aspects of early tooth development including stages of development, components of the tooth germ, dentin and enamel formation and mineralization, root development, and cementum formation.
4. Describe enamel: composition, thickness, importance, CEJ relationships, density, color, and solubility.
5. Describe the physical and chemical properties of dentin including its unique structural components and patterns.
6. Describe the functions, components, formation, and properties of cementum.
7. Describe the functions, components, and properties of the pulp and apical foramen.
8. Describe the functions of the periodontal ligament, the seven principal fibers, and identify the blood, lymph and nerve supply to the periodontal ligament.
9. Describe the functions and components of the alveolar process.
10. Locate each salivary gland, describe the type of secretion, and determine whether major or minor gland.
11. Describe masticatory mucosa in terms of function, texture, and color.
12. State the function of the epithelial attachment.
13. Describe lining mucosa and identify areas covered by lining mucosa.
14. Describe specialized mucosa and identify areas covered by or comprised of specialized mucosa.
15. Describe the arterial and venous blood flow through the head and neck.
16. Identify and state the functions of the muscles of the head and neck.
17. Identify the nerves that supply the head and neck region.
18. Demonstrate knowledge of dental nomenclature.
19. Compare and differentiate in form, function, and position all deciduous and permanent teeth in the human dentition.
20. Determine occlusion classification and deviations from normal in the deciduous and permanent dentitions according to the Angle's classification of occlusion.
21. Describe the temporomandibular joint and its movements.
22. Identify the histological and embryological development of the orofacial structures.

CREDIT HOURS

3 credit hours

CLASS MEETING TIME:

Lecture: Online

Laboratory: Online

INSTRUCTOR:

Kristina Mendoza, RDH, DDS

Office: MPC 217 Phone Number: 409-839-2914

Email: kmmendoza@lit.edu

Virtual Office Hours: Every Monday – 12:00pm – 1:00pm

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COURSE POLICIES

1. Attendance Policy

Absenteeism

In order to ensure the students in the dental hygiene program achieve the necessary didactic and clinical competencies outlined in the curriculum, it is necessary that the student complete all assigned lecture classes, clinical and laboratory hours. It is the responsibility of the student to attend class, clinic or lab. The instructor expects each student to be present at each session.

It is expected that students will appear to take their exams at the regularly scheduled examination time. Make-up examinations will be given **only** if the absence is due to illness (confirmed by a physicians' excuse), a death in the immediate family, or at the discretion of the instructor.

If students are unable to attend lecture class, clinic or lab, it is **mandatory that you call the appropriate instructor prior to the scheduled class, clinic or lab time. An absence will be considered unexcused if the student fails to notify the course faculty prior to the start of class, clinic, or lab. Attendance through Blackboard Collaborate is considered an absence. The course instructor must be notified at least one hour prior to the beginning of class/lab if the student plans to attend through Blackboard Collaborate.** The student is responsible for all material missed at the time of absence. Extenuating circumstances will be taken into account to determine if the absence is excused. Extenuating circumstances might include but are not limited to funeral of immediate family member, maternity, hospitalization, etc. If the student has surgery, a debilitating injury, or an extended illness, a doctor's release will be required before returning to clinic.

a. **Fall/Spring Semesters:**

Dental hygiene students will be allowed **two excused absences** in any lecture, clinic or lab. Absences must be accompanied by a written excuse on the next class day. In the event that a student misses class, clinic or lab beyond the allowed absences, the following policy will be enforced:

2 absences = notification in Starfish

Beginning with the third absence, **2 points** will be deducted from the final course grade for each absence thereafter.

Two (2) points will be deducted from the final (course) grade for each unexcused absence.

b. **Summer Sessions:**

Regular class attendance is expected. Be sure to sign in on a regular basis to check for any additional assignment openings, and to be sure your coursework is being completed. Also, be sure to check your gradebook regularly for missing or inaccurate grades. Bring any grade questions to the instructor immediately upon noticing them.

Tardiness

Tardiness is disruptive to the instructor and the students in the classroom. A student is considered tardy if not present at the start of class, clinic or lab. It is expected that students will arrive on time for class, clinic or lab, and remain until dismissed by the instructor. If tardiness becomes an issue, the following policy will be enforced:

Tardy 1 time = notification in Starfish

Tardy 2 times = is considered an unexcused absence. (See the definition of an unexcused absence)

If a student is more than 15 minutes late to any class period, it will be considered an unexcused absence.

Students should plan on attending classes, labs and clinic sessions as assigned throughout the semester. Family outings, vacations and personal business should be scheduled when school is not in session and will not be considered excuses for missing assignments, examinations, classes, labs or clinic time.

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2.Examination and Quiz Policy:

Examinations will be based on objectives, lecture notes, handouts, assigned readings, audiovisual material and class discussions. Major examinations will consist of multiple choice, true/false, matching, short answer, and case study questions. No questions will be allowed during exams.

Students are expected to complete examinations as scheduled. Make-up examinations will be given ONLY if the absence is due to illness (confirmed by a physicians' excuse), a death in the immediate family, or at the discretion of the Instructor. All make-up examinations must be taken within two (2) weeks from the scheduled exam date. All examinations will be kept on file by the Instructor. Students may have access to the examination by appointment during the Instructor's office hours. Exams may be reviewed up to two (2) weeks following the exam date. A grade of "0" will be recorded for all assignments due on the day of absences unless prior arrangements have been made with the Instructor.

Respondus Lockdown Browser and Respondus Monitor will be used for examinations therefore, a webcam is required to take the test. The student is required to show the testing environment at the beginning of the exam to assure the instructor that it is clear of any study materials. Failure to do so will result in a 10-point exam grade deduction.

3.Starfish

LIT utilizes an early alert system called Starfish. Throughout the semester, you may receive emails from Starfish regarding your course grades, attendance, or academic performance. Faculty members record student attendance, raise flags and kudos to express concern or give praise, and you can make an appointment with faculty and staff all through the Starfish home page. You can also login to Blackboard or MyLIT and click on the Starfish link to view academic alerts and detailed information. It is the responsibility of the student to pay attention to these emails and information in Starfish and consider taking the recommended actions. Starfish is used to help you be a successful student at LIT.

<https://lit.edu/student-success/starfish>

4. Electronic Devices

Electronic devices are a part of many individual's lives today. Devices such as tape recorders, radios, iPads, iPods, tablets, cell phones, paging devices and laptop computers, however, may be disturbing to faculty and classmates. Students, therefore, must receive the instructor's permission to operate all electronic devices in the classroom and clinic. Texting on cell phones or computers will not be allowed during class or clinic.

5.Academic Integrity

It shall be considered a breach of academic integrity (cheating) to use or possess on your body any of the following devices during any examination unless it is required for that examination and approved by the instructor: cell phone, smart watch/watch phone, laptop, tablet, electronic communication devices (including optical), and earphones connected to or used as electronic communication devices. It may also include the following: plagiarism, falsification and fabrication, abuse of academic materials, complicity in academic dishonesty, and personal misrepresentation.

Use of such devices during an examination will be considered academic dishonesty. The examination will be considered over and the student will receive a zero for the exam.

Students with special needs and/or medical emergencies or situations should communicate with their instructor regarding individual exceptions/provisions. It is the student's responsibility to communicate such needs to the instructor.

6.Late coursework.

Assignments must be completed by the due date. Late assignments will not be accepted and will result in a zero for that assignment.

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7. Mandatory Tutoring

If a student receives a failing grade on any major exam, the student will be required to meet with course instructor within 2 weeks of the failed exam.

8. Remediation

Remediation is available by appointment. See Student Handbook for more information about remediation policies.

9. Americans with Disabilities Act Statement

The Americans with Disability Act of 1990 and Section 504, Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. LIT provides reasonable accommodations as defined in the Rehabilitation Act of 1973, Section 504 and the American with Disability Act of 1990, to students with a diagnosed disability. The Special Populations Office is located in the Eagles' Nest Room 129 and helps foster a supportive and inclusive educational environment by maintaining partnerships with faculty and staff, as well as promoting awareness among all members of the Lamar Institute of Technology community. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409)839-2018. You may also visit the online resource at [Special Populations - Lamar Institute of Technology \(lit.edu\)](http://SpecialPopulations-LamarInstituteofTechnology.lit.edu)

10. Technical Requirements (for Blackboard)

The latest technical requirements, including hardware, compatible browsers, operating systems, software, Java, etc. can be found online at:

https://help.blackboard.com/enus/Learn/9.1_2014_04/Student/015_Browser_Support/015_Browser_Support_Policy.

A functional broadband internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of the online technology and resources. Blackboard Learn works best using Google Chrome.

11. Student Code of Conduct Statement

It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the *LIT Catalog and Student Handbook*. The *LIT Catalog and Student Handbook* may be accessed at www.lit.edu or obtained in print upon request at the Student Services Office. Please note that the online version of the *LIT Catalog and Student Handbook* supersedes all other versions of the same document.

***Faculty has the authority to modify the above policies if appropriate.**

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TEACHING METHODS

Teaching methods will include

- Slides, Handouts, Kaltura Videos, YouTube Videos, Website links
- Interactive 3D apps and software (Primal Pictures and BoneBox)
- Blackboard Learn discussions, activities, assignments, quizzes, exams
- Reading Assignments

REQUIRED TEXT

- Fehrenbach, Margaret J., and Herring, Susan W., **Illustrated Anatomy of the Head and Neck**, Elsevier, 6th edition, 2020 ISBN: 978-0-323-61301-9
- Fehrenbach, Margaret J., Popowics, Tracy, **Illustrated Dental Embryology, Histology, and Anatomy**, Elsevier Saunders, 5th edition, 2019, ISBN: 978-0-323-61107-7.
- LIT Dental Hygiene Student Handbook/Risk Management Policy and Procedures Manual** (current edition)
- Siggard, Felicia, **Head and Neck by Numbers**, 3rd Edition

REFERENCES

- Avery, J, Chiego D, **Essentials of Oral Histology and Embryology: A Clinical Approach**, 5th edition, Elsevier, 2018.
- Bonebox – Dental Lite app** by iSO-FORM, LLC
- Fahrenbach, Margaret J. **Dental Anatomy Coloring Book**, 3rd edition, Elsevier Saunders, 2018.
- Primal Pictures, Pharma Intelligence Informa**
- Scheid, RC, Weiss, G, **Woelfel’s Dental Anatomy**, Lippincott, Wolters Kluwer, 9th edition, 2018.

COURSE REQUIREMENTS

- Examinations
- Quizzes
- Dentalcare.com assignment
- Class Participation
- Assignments

EVALUATION CRITERIA

Exams: 7	70%
Lecture: 5	
Lab: 2	
Quizzes, dentalcare.com assignment	20%
Class Participation grade	<u>10%</u>
TOTAL	100%
Assignments	completion

GRADE SCALE:

- A = 92 - 100
- B = 83 - 91
- C = 75 – 82
- D = 60 – 74
- F = 59 and below

***A grade of C must be acquired to pass this course.

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CONTENT OUTLINE

TOPIC

1. Introduction to Head and Neck Anatomy
 - a. Clinical Application
 - b. Anatomic Nomenclature
 - c. Anatomic Variation
2. Surface anatomy
 - a. Surface Anatomy Overview
 - b. Regions of the head
 - c. Regions of the neck
3. Skeletal System
 - a. Skeletal System Overview
 - b. Head and neck bones
4. Glandular tissue
 - a. Glandular tissue Overview
 - i. Lacrimal Glands
 - ii. Salivary Glands
 1. Major Salivary Glands
 2. Minor Salivary Glands
 - iii. Parathyroid Gland
 - iv. Thymus Gland
5. Lymphatic System
 - a. Lymphatic System Overview
 - b. Lymph nodes of the head
 - i. Occipital Lymph Nodes
 - ii. Posterior Auricular, Anterior Auricular, and Superficial Parotid Lymph Nodes
 - iii. Facial Lymph Nodes
 - iv. Cervical lymph nodes
6. Fascia and Spaces
 - a. Fascia and Spaces Overview
 - i. Fasciae of the Head and Neck
 - ii. Spaces of the Head and Neck
7. Spread of Dental Infections
 - a. Infection Process Overview
 - b. Odontogenic Infection
 - c. Spread of Odontogenic Infection
 - d. Prevention of Spread of Infection
8. Muscular System
 - a. Muscular System Overview
 - b. Head and Neck Muscles
 - i. Cervical muscles
 - ii. Muscles of facial expression
 - iii. Muscles of mastication
 - iv. Hyoid muscles
 - v. Muscles of the tongue
 - vi. Muscles of the pharynx
9. Vascular System
 - a. Vascular System Overview
 - b. Arterial Blood Supply to Head and Neck
 - i. Origins to the head and neck
 - ii. Internal carotid artery

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- iii. External carotid
 - c. Venous Drainage of Head and Neck
 - i. Facial vein
 - ii. Retromandibular vein
 - iii. Superficial Temporal Vein
 - iv. Maxillary Vein
 - d. Venous sinuses
 - i. Internal jugular vein
 - ii. External jugular vein
 - e. Pathways to the heart from the head and neck
10. Nervous System
- a. Nervous System Overview
 - i. Central nervous system
 - ii. Peripheral nervous system
 - iii. Cranial nerves
 - b. Nerves to the oral cavity and associated structures
 - i. Trigeminal nerve
 - ii. Facial nerve
 - c. Nerve lesions of the head and neck
11. Face and Neck Development
- a. Facial Development
 - i. Stomodeum and oral cavity formation
 - ii. Mandibular arch and lower face formation
 - iii. Frontonasal process and upper face formation
 - iv. Maxillary process and midface formation
 - v. Upper and lower lip formation
 - b. Cervical Development
 - i. Primitive pharynx formation
 - ii. Apparatus formation
12. Orofacial Development
- a. Further Orofacial development
 - b. Palatal development
 - i. Primary palate formation
 - ii. Secondary palate formation
 - iii. Palate Completion
 - c. Nasal cavity and septum development
 - d. Tongue development
 - i. Body of the tongue formation
 - ii. Base of the tongue formation
 - iii. Completion of tongue formation
13. Tooth Development and Eruption
- a. Tooth development
 - i. Initiation stage
 - ii. Bud stage
 - iii. Cap stage
 - iv. Bell stage
 - v. Apposition and maturation stages
 - b. Root development
 - i. Root dentin formation
 - ii. Cementum and pulp formation
 - iii. Multirooted tooth development
 - c. Periodontal ligament and alveolar process development

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- d. Primary tooth eruption and shedding
- e. Permanent tooth eruption
- 14. Dental Anatomy
 - a. Overview of Dentition
 - i. Dentition
 - ii. Dentition Periods
 - iii. Dental Anatomy Terminology
 - iv. Tooth form
 - v. Considerations for dental anatomy study
 - b. Permanent Anterior Teeth
 - i. Permanent Anterior Teeth Properties
 - 1. Permanent Incisors
 - a. Permanent Maxillary Incisors
 - b. Permanent Mandibular Incisors
 - 2. Canines
 - a. Permanent Maxillary Canines
 - b. Permanent Mandibular Canines
 - c. Permanent Posterior Teeth
 - i. Permanent posterior teeth properties
 - 1. Permanent Premolars
 - a. Permanent Maxillary Premolars
 - b. Permanent Mandibular Premolars
 - 2. Permanent Molars
 - a. Permanent Maxillary Molars
 - b. Permanent Mandibular Molars
 - d. Primary Dentition
 - i. Primary teeth properties
 - 1. Primary incisors
 - 2. Primary canines
 - 3. Primary molars
- 15. Temporomandibular Joint
 - a. Temporomandibular Joint Overview
 - i. Joint bones
 - 1. Temporal bone
 - 2. Mandible
 - ii. Joint capsule
 - iii. Joint disc
 - iv. Ligaments associated with joint
 - b. Jaw movements with Muscle Relationships
- 16. Occlusion
 - a. Occlusion properties
 - b. Centric occlusion
 - i. Arch form
 - ii. Dental curvatures and angulations
 - iii. Centric stops
 - iv. Centric relation
 - v. Lateral and protrusive occlusion
 - vi. Mandibular rest position
 - c. Primary Occlusion
 - d. Malocclusion
 - i. Malocclusion classification

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17. Dental Histology

- a. Cells
 - i. Cell Properties
 - ii. Cell Division
 - iii. Extracellular Materials
 - iv. Intercellular junction
- b. Basic Tissue
 - i. Basic Tissue properties
 - ii. Basement Membrane properties
 - iii. Connective Tissue properties
 - iv. Muscle Properties
 - v. Nerve Tissue properties
- c. Oral Mucosa
 - i. Oral Mucosa Properties
 - 1. Lining mucosa
 - 2. Masticatory mucosa
 - 3. Specialized mucosa
 - 4. Epithelium of oral mucosa
 - 5. Lamina propria of oral mucosa
- d. Oral mucosa regional differences
 - i. Labial mucosa and buccal mucosa
 - ii. Alveolar mucosa
 - iii. Floor of the mouth and ventral tongue surface
 - iv. Soft palate
 - v. Attached gingival
 - vi. Hard palate
- e. Tongue and lingual papillae properties
- f. Oral mucosa pigmentation
- g. Oral mucosa turnover, repair, and aging

18. Gingival and Dentogingival Junctional Tissues

- a. Gingival tissues properties
- b. Dentogingival junctional tissues properties

19. Enamel

- a. Enamel properties
- b. Enamel matrix formation
- c. Enamel matrix maturation
- d. Enamel histology

20. Dentin and pulp

- a. Dentin-pulp complex
- b. Dentin properties
 - i. Dentin matrix formation
 - ii. Dentin matrix maturation
 - iii. Mature dentin components
 - iv. Dentin types
 - v. Dentin histology
 - vi. Aging dentin
- c. Pulp properties
 - i. Pulp anatomy
 - ii. Pulp histology
 - iii. Pulp zones
 - iv. Aging pulp

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- 21. Periodontium: Cementum, Alveolar Bone, Periodontal Ligament
 - a. Periodontium Properties
 - b. Cementum Properties
 - i. Cementum development
 - ii. Cementum histology
 - iii. Cementum types
 - iv. Cementum repair
 - v. Cementum pathology
 - c. Alveolar Process Properties
 - i. Jaw development
 - ii. Jaw anatomy and histology
 - d. Periodontal Ligament Properties
 - i. Periodontal ligament cells
 - ii. Periodontal ligament fiber group
 - 1. Alveolodental ligament
 - 2. Interdental ligament
 - 3. Gingival fiber groups

**LEARNER
OBJECTIVES**

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UNIT 1: Introduction to Head and Neck Anatomy

Upon the completion of this unit the student should be able to define the following terms:

1. Anatomic Nomenclature
2. Anatomic Position
3. Anatomic Terms
 - a. Anterior and Posterior
 - b. Ventral and Dorsal
 - c. Superior and Inferior
 - d. Apex
 - e. Sagittal and midsagittal or median plane
 - f. Coronal or frontal plane
 - g. Transverse or axial plane
 - h. Medial/mesial/median and lateral
 - i. Proximal and distal
 - j. Sagittal section and midsagittal section or median section
 - k. Coronal or frontal section
 - l. Transverse or axial section
 - m. Ipsilateral and contralateral
 - n. Superficial and deep
 - o. Internal and external
4. Anatomic Variation

UNIT 2: Surface and Intraoral Anatomy

Upon completion of this unit the student should be able to locate and identify the following on living subjects, 3D models and/or pictures:

1. Regions of the Head
 - a. Frontal Region
 - i. Supraorbital ridge (superciliary)
 - ii. Glabella
 - iii. Frontal eminence
 - b. Parietal and Occipital Regions
 - c. Temporal and Auricular Regions
 - i. Auricle
 - ii. External Acoustic Meatus
 - iii. Helix
 - iv. Lobule
 - v. Tragus
 - vi. Antitragus
 - vii. Intertragic notch
 - d. Orbital Region
 - i. Orbit
 - ii. Sclera
 - iii. Iris
 - iv. Pupil
 - v. Medial and lateral canthi
 - vi. Conjunctiva
 - e. Nasal Region
 - i. Root of the nose
 - ii. Bridge of the nose
 - iii. Nasal septum
 - iv. Ala
 - v. Naris
 - vi. Apex of the nose

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- f. Infraorbital, Zygomatic, and Buccal Regions
- g. Oral Region
 - i. Nasolabial sulcus
 - ii. Labiomentental groove
 - iii. Vermilion zone
 - iv. Vermilion border
 - v. Philtrum
 - vi. Tubercle of the upper lip
 - vii. Labial commissure
 - viii. Mental protuberance
 - ix. Oral Cavity
 - 1. Labial frenum
 - 2. Vestibules
 - 3. Vestibular fornix
 - 4. Mucobuccal folds
 - 5. Gingiva
 - 6. Attached gingiva
 - 7. Mucogingival junction
 - 8. Mucobuccal fold
 - 9. Marginal gingiva
 - 10. Gingival sulcus
 - 11. Interdental gingiva or papilla
 - 12. Maxillary tuberosity
 - 13. Retromolar pad
 - 14. Parotid papilla
 - x. Palate
 - 1. Hard palate
 - 2. Incisive papilla
 - 3. Palatine rugae
 - 4. Soft palate
 - 5. Uvula
 - 6. Median palatine raphe
 - 7. Pterygomandibular fold
 - xi. Tongue
 - 1. Tongue (apex, body, base)
 - 2. Dorsal, ventral, and lateral surfaces of the tongue
 - 3. Medial lingual sulcus
 - 4. Sulcus terminalis
 - 5. Foramen cecum
 - 6. Lingual tonsils
 - 7. Plica fimbriata
 - 8. Lingual papillae
 - a. Foliate
 - b. Fungiform
 - c. Filiform
 - d. Circumvallate
 - 9. Deep lingual veins
 - xii. Floor of the mouth
 - 1. Lingual frenum
 - 2. Sublingual fold
 - 3. Sublingual caruncle
 - xiii. Pharynx
 - 1. Nasopharynx, oropharynx, laryngopharynx
 - 2. Epiglottis
 - 3. Palatine Tonsils

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4. Fauces
 - a. Anterior faucial pillar
 - b. Posterior faucial pillar
- h. Mental Region
 - i. Mental protuberance
2. Regions of the Neck
 - a. Anterior cervical triangle
 - b. Posterior cervical triangle
 - c. Thyroid cartilage
 - d. Superior thyroid notch
 - e. Larynx
 - f. Hyoid bone
 - g. Submandibular triangle
 - h. Carotid triangle
 - i. Muscular triangle
 - j. Submental triangle
 - k. Occipital triangle
 - l. Subclavian triangle

UNIT 3: Glandular Tissue

Upon completion of this unit the student should be able to:

1. Define exocrine and endocrine glands
2. Discuss the salivary gland properties, including histologic features and development.
3. Identify the functions of salivary glands.
4. Identify two types of secretory cells and describe their secretory products.
5. Identify the two major groups of salivary glands.
6. Define serous, mixed, and mucous secretion.
7. Identify the major salivary glands; give the location and secretion of each; name their main ducts and give their percentage of total salivary volume.
8. Identify the minor salivary glands.
9. Describe the location of Von Ebner's glands and give its secretion.
10. State the part of the central nervous system which controls the salivary glands.
11. Identify the nerves and blood vessels that supply each salivary gland.
12. Locate the thyroid gland, parathyroid glands and the thymus gland.
13. Identify the functions of the thyroid, parathyroid and thymus glands.
14. Identify the nerves and blood vessels that supply the thyroid, parathyroid and thymus glands

UNIT 4: Bones of the Head and Neck

Upon completion of this unit the student should be able to:

1. Locate and identify the following:
 - a. Cranial bones
 - i. Occipital bone
 1. Foramen magnum
 2. Occipital condyles
 3. Jugular notch
 4. Hypoglossal canals
 - ii. Frontal bone
 1. Supraorbital ridge
 2. Supraorbital notch
 3. Glabella
 4. Zygomatic process of the frontal bone
 5. Coronal suture

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- iii. Parietal bones
 - 1. Sagittal suture
 - 2. Lambdoidal suture
 - 3. Squamosal suture
- iv. Temporal bones
 - 1. Squamous Portion
 - a. Zygomatic process of the temporal bone
 - b. Articular fossa (mandibular)
 - c. Articular eminence
 - d. Postglenoid process
 - e. Temporal fossa
 - 2. Tympanic Portion
 - a. External acoustic meatus
 - b. Petrotympanic fissure
 - 3. Petrous Portion
 - a. Mastoid process
 - b. Mastoid notch
 - c. Styloid process
 - d. Stylomastoid foramen
 - e. Jugular foramen
 - f. Internal acoustic meatus
 - g. Carotid canal
 - h. Foramen lacerum
- v. Sphenoid bone
 - 1. Body of the sphenoid
 - a. Hypophyseal fossa
 - 2. Lesser wing of the sphenoid
 - a. Optic canal (foramen)
 - b. Superior orbital fissure
 - 3. Greater wing of the sphenoid
 - a. Inferior orbital fissure
 - b. Foramen rotundum
 - c. Foramen ovale
 - d. Foramen spinosum
 - e. Spine of the sphenoid bone
 - f. Infratemporal crest
 - 4. Pterygoid process of the sphenoid
 - a. Lateral pterygoid plate
 - b. Medial pterygoid plate
 - c. Pterygoid fossa
 - d. Hamulus
- vi. Ethmoid Bone
 - 1. Perpendicular plate
 - 2. Superior nasal conchae
 - 3. Middle nasal conchae
 - 4. Orbital plate
 - 5. Cribriform plate
 - 6. Crista galli
- b. Facial Bones
 - i. Vomer
 - 1. Nasal septum
 - ii. Lacrimal bones (2)
 - 1. Nasolacrimal duct
 - iii. Nasal bones (2)
 - iv. Inferior nasal conchae (2)

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- v. Zygomatic bones
 - 1. Frontal process
 - 2. Temporal process
 - 3. Maxillary process
 - a. Infraorbital rim
 - 4. Zygomatic arch
 - a. Zygomatic process of the temporal bone
 - b. Temporal process of the zygomatic bone
 - 5. Palatine bones
 - a. Horizontal plate
 - b. Median palatine suture
 - c. Transverse palatine suture
 - d. Greater palatine foramen
 - e. Lesser palatine foramen
 - f. Posterior nasal apertures
 - 6. Vertical plate
 - a. Orbital process
- vi. Maxillary bones
 - 1. Body of the maxillae
 - a. Maxillary tuberosity
 - b. Posterior superior alveolar foramina
 - c. Inferior and superior orbital fissure
 - d. Infraorbital foramen
 - e. Infraorbital sulcus
 - f. Infraorbital canal
 - g. Canine fossa
 - h. Nasal aperture (piriform aperture)
 - 2. Frontal process of the maxilla
 - a. Medial orbital rim
 - 3. Alveolar process
 - a. Canine eminence
 - 4. Zygomatic process
 - a. Infraorbital rim
 - 5. Palatine process
 - a. Median palatine suture
 - b. Incisive foramen
- vii. Mandible
 - 1. Body of the mandible
 - 2. Mental protuberance
 - 3. Symphysis
 - 4. Ramus
 - 5. Angle of the mandible
 - 6. Mental foramen
 - 7. External oblique line
 - 8. Coronoid notch
 - 9. Mandibular notch
 - 10. Coronoid process
 - 11. Condyle
 - 12. Articulating surface of the condyle
 - 13. Genial tubercles (mental spines)
 - 14. Mylohyoid line (ridge)
 - 15. Mylohyoid groove
 - 16. Sublingual fossa
 - 17. Submandibular fossa
 - 18. Mandibular foramen

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19. Lingula
20. Pterygoid fovea
21. Retromolar triangle
2. Describe the hyoid bone and identify the body and greater and lesser cornu.
3. Discuss how the hyoid bone functions and what unique characteristic enables it to be mobile.
4. Identify the paranasal sinuses and discuss their functions.
5. State the number of bones in the skull.
6. Identify bones as either cranial or facial bones.
7. Describe the function/purpose of foramina, canals, fissures, and other bony openings.
8. Define articulation.
9. List and define the words used to describe bony prominences.
10. List and define the words used to describe bony depressions.
11. Identify the paranasal sinuses, their locations, and functions.

Unit 5: Lymphatics Fascia and Spaces and Spread of Dental Infections

Upon completion of this unit the student should be able to:

1. State the function of the lymphatic system.
2. List the components of the lymphatic system.
3. Discuss the drainage pattern of the lymph system in the head and neck region.
4. Identify on a picture and on a diagram the major groups of lymph nodes that drain the head and neck and specify the areas that they drain.
5. Define "primary", "secondary", and "tertiary" nodes.
6. Locate the tonsillar tissues on a diagram.
7. Define lymphadenopathy.
8. Discuss the role of the lymphatic system in the metastasis of cancer.
9. Define superficial and deep fascia.
10. Identify the significance of fascia.
11. Identify the major spaces in the head and neck.
12. Discuss the significance of the spaces in the spread of dental infections.
13. Define terms used to describe dental infection and the spread of dental infection.
14. Discuss the different ways that dental infections can be spread.
15. Discuss the lesions and complications that can occur with the spread of dental infection in the head and neck region.

UNIT 6: Muscles

Upon completion of this unit the student should be able to:

1. Identify the muscles of facial expression and state the origin, insertion, and action of the muscle.
2. Identify the muscles of mastication, their origin, insertion, action, blood supply, and nerve supply.
3. Identify the cervical muscles, their origin and insertion, action, blood supply and nerve supply.
4. Identify the hyoid muscles, their origin and insertion, action, blood supply and nerve supply.
5. Identify the muscles of the tongue, their origin and insertion, action, blood supply and nerve supply.

UNIT 7: Nerves

Upon completion of this unit the student should be able to:

1. Identify the two major divisions of the nervous system.
2. Identify the three components of the peripheral nervous system.
3. Identify the twelve cranial nerves, their general functions and areas that they innervate.
4. For each of the following nerves, describe the tissues innervated and whether the nerve is afferent (sensory) or efferent (motor):
 - a. Trigeminal (all divisions and branches)
 - b. Facial

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- c. Glossopharyngeal
 - d. Vagus
5. Discuss facial paralysis, Bell's Palsy and Trigeminal neuralgia

UNIT 8: Blood Supply

Upon completion of this unit the student should be able to:

1. Identify and locate the arteries and veins of the head and neck and state the areas supplied or drained by each.
2. Trace the blood flow through the head and neck region.
3. Identify the significance of the routes of blood flow and the location of vessels as it relates to local anesthesia injections or the spread of dental infections.

UNIT 9: Permanent Anterior Teeth

Upon completion of this unit the student should be able to:

1. List or select from a list, the appropriate age(s) concerning the developmental chronology of incisors, found in the various developmental tables, when given a certain developmental feature.
2. Demonstrate a knowledge of the morphology of each surface or the crown and root of the incisors and canines by:
 - a. describing
 - b. selecting
 - c. or using a drawing, photograph, or 3D picture to identify or label any of the following features:
 - i. contours of any surface or margin of a surface
 - ii. structural entities such as:
 1. cingulum
 2. developmental lines (depressions)
 3. fossae
 4. imbrication lines
 5. incisal edge
 6. linguogingival fissure
 7. linguogingival groove
 8. marginal ridges
 9. root grooves
 - iii. Relative dimensions and shape
3. Describe or select the correct response from a list, the various comparisons between the incisors and canines.
4. Describe the general characteristics of any given incisor and canine including function, arch position, and distinguishing features.
5. Determine from a diagram, description, photograph, or 3D picture whether a given incisor or canine is maxillary or mandibular, left or right, and central or lateral.
6. Determine the correct designation for a given incisor or canine diagram, description, photograph or 3D Picture using any numbering system previously covered.
7. Recognize the developmental anomaly present when given a 3D picture or photograph of any incisor or canine.
8. Identify on a diagram or model, define, or describe all the italicized terminology used in naming landmarks of the oral cavity.

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UNIT 10: Permanent Posterior Teeth

Upon completion of this unit the student should be able to:

1. List or select from a list, the appropriate age(s) concerning the developmental chronology of premolars, found in the various developmental tables, when given a certain developmental feature.
2. Demonstrate a knowledge of the morphology of each surface or the crown and root of the premolars and molars by
 - a. describing:
 - b. selecting
 - c. or using a drawing, photograph, or 3D picture to identify or label any of the following features:
 - i. contours of any surface or margin of a surface
 - ii. structural entities such as:
 1. cusps
 2. cusp ridges
 3. developmental grooves (lines/depressions)
 4. fossae
 5. longitudinal root grooves
 6. marginal ridges
 7. pits
 8. roots or central groove
 - iii. relative dimensions and shape
3. Describe or select the correct response from a list, the various comparisons between the premolars and molars
4. Describe the general characteristics of any given premolar and molar including function, arch position, and distinguishing features.
5. Determine from a diagram, description, photograph, or 3D picture whether a given premolar or molar is maxillary or mandibular, left or right, and first and second.
6. Determine the correct designation for a given premolar or molar diagram, description, photograph, or 3D picture using any numbering system previously covered.
7. Recognize the developmental anomaly present when given a specimen or photograph of any premolar or molar.
8. Identify on a diagram or model, define or describe all the italicized terminology used in naming landmarks of the oral cavity.

UNIT 11: Deciduous Anterior and Posterior Teeth

Upon completion of this unit the student should be able to:

1. Demonstrate knowledge of the general differences between the permanent and deciduous teeth, by describing, or selecting the correct response from a list, when given one or more differences, or any appropriate implications of these differences.
2. Demonstrate knowledge of the morphology of each surface of the crown and root of all deciduous teeth by:
 - a. describing
 - b. selecting
 - c. or identifying from a diagram or 3D picture, any of the following features:
 - i. contours of any surface, or margin of any surface
 - ii. structural entities such as grooves, pits, ridges cusps, fossae, etc.
 - iii. relative dimensions and shapes
 - iv. root numbers, location, and contours
 - v. any other surface features
3. Describe or select the correct response from a list, the various comparisons between specific deciduous teeth, and their permanent counterparts, where appropriate.
4. Identify from a diagram, 3D picture, or description which deciduous tooth is being described, or illustrated, as to classification, arch, or right or left quadrant.

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5. Determine the correct number for a given diagram, description, or specimen using any numbering system previously covered.
6. List or select from a list the eruption dates of deciduous teeth.
7. Discuss the importance and functions of deciduous teeth.

UNIT 12: Development of the Face, Neck and Orofacial Structures

Upon completion of this unit the student should be able to:

1. Define the key terms in the chapters.
2. Integrate knowledge of the development of the face, neck, and orofacial structures into understanding the observed structures and any developmental disturbances of these structures.
3. Discuss the development of the face including time of formation and the embryonic layers involved.
4. Explain the development of the following including formation sequence, time origin and tissues.
 - a. stomodeum and oral cavity
 - b. maxillary process and midface
 - c. mandibular arch and lower face
 - d. front to nasal process and upper face
5. Explain the development of the neck including formation sequence, time, origin, and tissue involved.
 - a. primitive pharynx
 - b. bronchial apparatus
6. Describe the development of the palate including sources, fusion, role of tongue development, development of the nasal septum, and abnormalities associated with the fusion of the palate.
7. Describe possible areas of clefts with the fusing of the upper lip.
8. Describe the portions of the tongue and which bronchial arches are involved in its development.
9. State the time fusion of the palate should be complete.
10. Define tuberculum impar and copula.

UNIT 13: Tooth Development and Eruption

Upon completion of this unit the student should be able to:

1. Define key terms in this chapter.
2. Describe the stages of tooth development including the stay, time span, microscopic appearance, main processes involved, and its description.
3. Identify the clinical considerations with the disturbances in each stage.
4. Identify the cell layers of the tooth during the Bell Stage, a description of the layers and its role in tooth formation.
5. Describe the opposition and maturation stages of tooth development including formation of preameloblasts, odontoblasts and dental matrix, ameloblasts, dentinoenamel function and enamel matrix.
6. Explain the process of root development including root dentin, cementum, and pulp formation.
7. Describe the development of the periodontal ligament and alveolar bone development.
8. Explain the differences in root formation for multirooted teeth.
9. Explain the tooth eruption process and the shedding of the primary teeth.
10. Explain the process for permanent tooth eruption.

UNIT 14: Occlusion

Upon completion of this unit the student should be able to:

1. Correlate the relationship between the eruption schedule, growths, and ultimate alignment of the teeth.
2. Describe the affect which muscle forces have on the alignment of the teeth.

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3. Define the terms:
 - a. Occlusion
 - b. Static occlusion
 - c. Functional occlusion
 - d. Centric occlusion
 - e. Centric relation
 - f. Malocclusion
4. Discuss the rationale for observing a patient's occlusion.
5. Describe and recognize the three types of facial profiles.
6. Describe and recognize the malocclusion of groups of teeth and individual teeth.
7. Describe angle's classification of malocclusion for permanent and deciduous dentitions.
8. Describe and recognize normal (ideal) occlusion, canine and molar relationships.
9. Discuss parafunctional habits, myofunctional and skeletal considerations, and occlusal trauma and their relation to occlusion.

UNIT 15: Orofacial Structures

Upon completion of this unit the student should be able to:

1. Describe the general histological features of oral mucosa.
2. Name the 3 categories of oral mucosa. Describe their characteristics.
3. Describe the 3 types of stratified squamous epithelium.
4. Name the main fiber of the lamina propria.
5. Describe the 2 layers of lamina propria.
6. Define submucosa.
7. Describe the regional differences of the oral mucosa by clinical features and histological features.
8. Describe the 4 types of lingual papillae in clinical appearance and histological features.
9. Name the four tastes and locate areas of the mouth where each taste sensation can be found.
10. Identify and state the functions of Langerhan's cells, Merkel's cells, and melanocytes.
11. Discuss the renewal rates for different tissues in the oral cavity and their clinical correlations.

UNIT 16: Gingival and Dentogingival Functional Tissues

Upon completion of this unit the student should be able to:

1. Define key terms in chapters.
2. List and describe each of the types of gingival tissues.
3. Describe the histological features of the different types of gingival tissues.
4. Describe the composition and development of the dentogingival functional tissues.
5. Discuss cell renewal for the tissues of the dentogingival function.

UNIT 17: Enamel

Upon completion of this unit the student should be able to:

1. Define key terms in the chapter.
2. Describe the formation and location and physical characteristics of enamel, including the following:
 - a. Hardness
 - b. Thickness
 - c. Color
 - d. Permeability
 - e. Solubility
 - f. Surface enamel
3. Describe:
 - a. Ameloblasts
 - b. Interprismatic region
 - c. Lines of Retzius

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- d. Nasmyth's membrane
- e. Tome's processes
- f. Reduced enamel epithelium
- g. Enamel rods
4. List the chemical composition of enamel including percentages of each component.
2. Describe perikymata.
3. Describe the microscopic structure of enamel including the rods, rod sheaths, and interrod substance.
4. Describe and give the clinical significance of the following formations in the enamel.
 - a. Neonatal line
 - b. Enamel spindles
 - c. Enamel lamellae
 - d. DEJ
 - e. Enamel tufts
 - f. Imbrication lines
5. Discuss the apposition and maturation of enamel.

UNIT 18: Dentin and Pulp

Upon completion of this unit the student should be able to:

1. Define all terms in the chapter.
2. Discuss the dentin-pulp complex and describe the properties of dentin and pulp.
3. Discuss the apposition and maturation of dentin.
4. Outline the types of dentin.
5. Label the anatomical components of pulp.
6. Discuss the microscopic features of dentin and pulp.
7. Identify the microscopic zones in the pulp and describe the zone.
8. Describe the age changes in pulp and dentin.
9. List and describe the four main functions of the pulp.

Unit 19: Periodontium: Cementum, Alveolar Bone, Periodontal Ligament

Upon completion of this unit the student should be able to:

1. Define all terms in this chapter.
2. Discuss the periodontium and describe the properties of the cementum, alveolar bone, and periodontal ligament
3. Discuss the development of the periodontium.
4. Outline the types of cementum and alveolar bone.
5. Label the fiber groups of the periodontal ligament and discuss their functions.
6. Demonstrate and discuss the microscopic features of cementum, alveolar bone, and periodontal ligament.
7. Describe age changes in the periodontium.

UNIT 20: Temporomandibular Joint

At the end of this unit the student should be able to:

1. Locate and identify the specific, anatomical landmarks of the temporomandibular joint (TMJ) on a diagram, skull, and a patient.
2. Describe the histology of each component of the TMJ.
3. Describe the movements of the TMJ.
4. Integrate the knowledge of the anatomy and histology.

APPENDIX

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Class Participation

▪ Participation grade – this grade is based upon the following factors:

1. Attendance/Promptness

The student will be marked absent if he/she has not posted on the discussion forum and/or submit assignments/activities in a particular day. The student is expected to complete all assignments/activities and/or discussion posts by the due date.

2. Level of Engagement and Collaboration Skills in Class:

The class participation grade is also dependent on your active participation, engagement throughout the course and contribution to group activities and/or assignments.

3. Netiquette

The student should behave properly online and should follow the guidelines written below.

Netiquette Guidelines

Netiquette is a set of rules for behaving properly online. Your instructor and fellow students wish to foster a safe online learning environment. All opinions and experiences, no matter how different or controversial they may be perceived, must be respected in the tolerant spirit of academic discourse. You are encouraged to comment, question, or critique an idea but you are not to attack an individual. Working as a community of learners, we can build a polite and respectful course community.

- Do not dominate any discussion.
- Give other students the opportunity to join in the discussion.
- Do not use offensive language. Present ideas appropriately.
- Be cautious in using Internet language. For example, do not capitalize all letters since this suggests shouting.
- Popular emoticons such as ☺ or / can be helpful to convey your tone but do not overdo or overuse them.
- Avoid using vernacular and/or slang language. This could possibly lead to misinterpretation.
- Never make fun of someone's ability to read or write.
- Share tips with other students.
- Keep an "open-mind" and be willing to express even your minority opinion. Minority opinions have to be respected.
- Think and edit before you push the "Send" button.
- Do not hesitate to ask for feedback.
- Using humor is acceptable

The following netiquette tips will enhance the learning experience for everyone in the course:

Adapted from:

Mintu-Wimsatt, A., Kernek, C., & Lozada, H. R. (2010). *Netiquette: Make it part of your syllabus*. Journal of Online Learning and Teaching, 6(1). Retrieved from http://jolt.merlot.org/vol6no1/mintu-wimsatt_0310.htm

Shea, V. (1994). Netiquette. Albion.com. Retrieved from: <http://www.albion.com/netiquette/book/>

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CLASS PARTICIPATION RUBRIC:

Student Name		
Attendance/Promptness	3	Student is always prompt in submitting assignments/activities/posts.
	2	Students is late once in submitting assignments/activities/post
	1	Students is late more than once in submitting assignments/activities/post
Level of Engagement and Collaboration Skills in Class:	3	Student proactively contributes to class/group by offering ideas and asking questions more than once per session
	2	Student proactively contributes to class/group by offering ideas and asking questions once per session
	1	Student rarely contributes to class/group by offering ideas and asking questions
Netiquette	3	Student never displays disruptive behavior during class
	2	Student rarely displays disruptive behavior during class
	1	Student occasionally displays disruptive behavior during class
TOTAL		Comment: