

DLT 111
DENTAL ANATOMY/PHYSIOLOGY

COURSE DESCRIPTION:

Prerequisites: Enrollment in the Dental Laboratory Technology program

Corequisites: None

This course introduces the anatomy of the individual tooth and the basic anatomy/physiology of the head, oral cavity, and supporting structures. Topics include anatomy, contour, occlusion, malocclusion, the temporomandibular joint, and the anatomical structures of the head and oral cavity. Upon completion, students should be able to carve teeth with proper occlusion, anatomy, and contour and understand the anatomy of the head and oral cavity. Course Hours Per Week: Class, 3. Lab, 6. Semester Hours Credit, 5.

LEARNING OUTCOMES:

The student will:

- a. Draw to scale the five surfaces of the 16 teeth on one side of the upper and lower arches.
- b. Wax and carve to scale from sculpturing wax 16 teeth on the upper and lower arches.
- c. Identify the anatomical landmarks of each tooth in the upper and lower arches.
- d. Use the proper terminology associated with each tooth of both arches.
- e. Identify and describe the bones of the skull.
- f. Identify and describe the muscles of facial expression and mastication.
- g. Describe the composition of the teeth and their supporting structures.
- h. Describe the eruption and function of primary and permanent dentition.
- i. Identify and describe anatomical landmarks of the edentulous mouth.
- j. Identify and describe the anatomy of the TMJ and its basic movements.
- k. Describe the various relationships between the maxillary and mandibular arches including occlusion and malocclusion.
- l. Research a tooth and provide a written document and oral presentation

OUTLINE OF INSTRUCTION:

- I. Introduction to dental anatomy
 - A. Four hour classroom orientation and familiarization
 - 1) Presentation
 - (a.) Introduction to DLT 111
 - (b.) Course outline
 - (c.) Student responsibilities
 - (d.) Proper use of the Boley gauge
 - (e.) Tooth numbering systems
 - (f.) "Your Mouth," 16 mm film--15 minutes
 - (g.) Define
 - (1.) Anatomy

- (2.) Physiology
- (h.) Typical inquiries about the body
- (i.) Body structures
- (j.) Structural units
- (k.) Body functions

2) Application

B. References

- 1) "Glossary" Air Force Manual
- 2) Dental Anatomy, UNC, Section 4
- 3) An Atlas of Tooth Form
- 4) Linek Tooth Carving Manual

II. Maxillary central incisors

A. One hour classroom lecture

- 1) Presentation - overhead projector and transparencies
 - (a.) Location and identification
 - (b.) Explanation of function
 - (c.) Definition and description of surface anatomy
 - (d.) Technique for scale tooth drawings
- 2) Application

B. One hour laboratory demonstration

- 1) Drawing the maxillary central incisors
- 2) Waxing maxillary central incisors - live and video

C. References

- 1) An Atlas of Tooth Form, pages 32-35
- 2) Dental Anatomy, UNC, pages 109-113
- 3) Linek Tooth Carving Manual, pages 6-7

III. Maxillary lateral incisors

A. One hour classroom lecture

- 1) Presentation - overhead projector and transparencies
 - (a.) Location and identification
 - (b.) Explanation of function
 - (c.) Definition and description of surface anatomy
 - (d.) Comparison with other anterior teeth
 - (e.) Drawing maxillary lateral incisors
- 2) Application

B. One hour laboratory demonstration - waxing the maxillary lateral incisors - live and video

C. References

- 1) An Atlas of Tooth Form, pages 35-36
- 2) Dental Anatomy, UNC, pages 114-116
- 3) Linek Tooth Carving Manual, pages 8-9

IV. Maxillary cuspids

A. One hour classroom lecture

- 1) Presentation - overhead projector and transparencies
 - (a.) Location and identification
 - (b.) Explanation of function

- (c.) Definition and description of surface anatomy
 - (d.) Comparison with other anterior teeth
 - (e.) Drawing maxillary cuspids
 - 2) Application
 - B. One hour laboratory demonstration - waxing the maxillary cuspids - live and video
 - C. References
 - 1) An Atlas of Tooth Form, pages 36-41
 - 2) Dental Anatomy, UNC, pages 125-128
 - 3) Linek Tooth Carving Manual, pages 10-11
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- V. Maxillary first and second bicuspid
 - A. One hour classroom lecture
 - 1) Presentation - overhead projector and transparencies
 - (a.) Location and identification
 - (b.) Explanation of function
 - (c.) Definition and description of surface anatomy
 - (d.) Comparison with cuspids and second bicuspid
 - (e.) Drawing maxillary first and second bicuspid
 - 2) Application
 - B. One hour laboratory demonstration - waxing the maxillary first and second bicuspid - live and video
 - C. References
 - 1) An Atlas of Tooth Form, pages 41-46
 - 2) Dental Anatomy, UNC, pages 133-139
 - 3) Linek Tooth Carving Manual, pages 11-15
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- VI. Maxillary first and second molars
 - A. One hour classroom lecture
 - 1) Presentation - overhead projector and transparencies
 - (a.) Location and identification
 - (b.) Explanation of function
 - (c.) Definition and description of surface anatomy
 - (d.) Comparison with bicuspid
 - (e.) Drawing maxillary first and second molars
 - 2) Application
 - B. One hour laboratory demonstration - waxing the maxillary first and second molars - live and video
 - C. References
 - 1) An Atlas of Tooth Form, pages 47-54
 - 2) Dental Anatomy, UNC, pages 150-159
 - 3) Linek Tooth Carving Manual, pages 16-19
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- VII. Mandibular central and lateral incisors
 - A. One hour classroom lecture
 - 1) Presentation - overhead projector and transparencies
 - (a.) Location and identification
 - (b.) Explanation of function
 - (c.) Definition and description of surface anatomy
 - (d.) Comparison with maxillary and mandibular anterior teeth

- (e.) Drawing mandibular central and lateral incisors
- 2) Application
- B. One hour laboratory demonstration - waxing the mandibular central and lateral incisors - live and video
- C. References
 - 1) An Atlas of Tooth Form, pages 57-61
 - 2) Dental Anatomy, UNC, pages 118-123
 - 3) Linek Tooth Carving Manual, pages 23-25

VIII. Mandibular cuspids

- A. One hour classroom lecture
 - 1) Presentation - overhead projector and transparencies
 - (a.) Location and identification
 - (b.) Explanation of function
 - (c.) Definition and description of surface anatomy
 - (d.) Comparison with maxillary and mandibular anterior teeth
 - (e.) Drawing mandibular cuspids
 - 2) Application
- B. One-hour laboratory demonstration - waxing the mandibular cuspid - live and video
- C. References
 - 1) An Atlas of Tooth Form, pages 61-63
 - 2) Dental Anatomy, UNC, pages 125-131
 - 3) Linek Tooth Carving Manual, pages 26-27

IX. Mandibular first and second bicuspid

- A. One hour classroom lecture
 - 1) Presentation - overhead projector and transparencies
 - (a.) Location and identification
 - (b.) Explanation of function
 - (c.) Definition and description of surface anatomy
 - (d.) Comparison with maxillary and mandibular posterior teeth
 - (e.) Drawing mandibular first and second bicuspid
 - 2) Application
- B. One-hour laboratory demonstration - waxing the mandibular first and second bicuspid - live and video
- C. References
 - 1) An Atlas of Tooth Form, pages 63-68
 - 2) Dental Anatomy, UNC, pages 142-148
 - 3) Linek Tooth Carving Manual, pages 28-31

X. Mandibular first and second molar

- A. One hour classroom lecture
 - 1) Presentation - overhead projector and transparencies
 - (a.) Location and identification
 - (b.) Explanation of function
 - (c.) Definition and description of surface anatomy
 - (d.) Comparison with maxillary and mandibular posterior teeth
 - (e.) Drawing mandibular first and second molars

- 2) Application
- B. One hour laboratory demonstration - waxing the mandibular first and second molars - live and video
- C. References
 - 1) An Atlas of Tooth Form, pages 67-74
 - 2) Dental Anatomy, UNC, pages 162-169
 - 3) Linek Tooth Carving Manual, pages 32-35

XI. Skeletal anatomy of the head

A. Classroom lecture - 2 hours

1) Presentation

- (a.) Four types of human body tissues and their functions
- (b.) Composition of bone
- (c.) Development and structure of bone
- (d.) Division and classification of bones
- (e.) The cranial bones
 - (1.) Occipital
 - (2.) Parietal
 - (3.) Frontal
 - (4.) Temporal
 - (5.) Ethmoid
 - (6.) Sphenoid
- (f.) The facial bones
 - (1.) Zygomatic
 - (2.) Lacrimal
 - (3.) Nasal
 - (4.) Vomer
 - (5.) Inferior nasal conchae
 - (6.) Palatal
 - (7.) Maxilla
 - (8.) Mandible

2) Application

B. Reference

- 1) Dental Anatomy, UNC, pages 1-12
- 2) Handouts

XII. Muscular anatomy of the head

A. Classroom lecture - 2 hours

1) Presentation

- (a.) Types of muscle tissue and their formation
- (b.) Muscle function
- (c.) Muscles of facial expression
 - (1.) Orbicularis oris
 - (2.) Zygomaticus
 - (3.) Mentalis
 - (4.) Caninus
 - (5.) Labii superioris
 - (6.) Labii inferioris
 - (7.) Risorius

- (8.) Triangularis
- (9.) Buccinator
- (d.) Muscles of mastication
 - (1.) Masseter
 - (2.) Lateral pterygoid
 - (3.) Medial pterygoid
 - (4.) Temporal
 - (5.) Mylohyoid

2) Application

B. Reference

- 1) Dental Anatomy, UNC, page 13-21
- 2) Handout

XIII. Tooth structure, supporting dentition and form

A. Classroom lecture - 1 hour

- 1) Presentation
 - (a.) Composition
 - (b.) Supporting structures
 - (c.) Tooth form and its physiology
- 2) Application

B. References

- 1) Dental Anatomy, UNC, pages 33-37, 45, 46, 54 and 55
- 2) Handouts - pages 73-79

XIV. Development of teeth-1 hour

A. Classroom lecture

- 1) Presentation
 - (a.) Developmental stages
 - (1.) Growth
 - (2.) Calcification
 - (3.) Eruption
 - (4.) Attrition
 - (b.) Differences between primary and permanent teeth
- 2) Application

B. References

- 1) Dental Anatomy, UNC, pages 61-69
- 2) Handouts - pages 79-82

XV. The edentulous mouth

A. Classroom lecture - 2 hours

- 1) Presentation
 - (a.) Mucous membrane
 - (b.) Landmarks of the edentulous maxilla
 - (c.) Landmarks of the edentulous mandible
- 2) Application

B. Reference

- 1) Dental Anatomy, UNC, pages 47-60
- 2) Handouts

- XVI. The effects of tooth loss on the anatomical structure
- A. Classroom lecture - 1 hour
 - 1) Presentation
 - (a.) Causes for the loss of dentition
 - (b.) Causes for changes in facial appearance
 - (c.) Causes for changes in function
 - 2) Application
 - B. Reference: Dental Anatomy, UNC, pages 56-60

- XVII. Temporomandibular articulation and occlusion
- A. Classroom lecture - 2 hours
 - 1) Presentation
 - (a.) Temporomandibular joint
 - (b.) Mandibular positions and movements
 - (c.) Positions of the mandible
 - (1.) Centric
 - (2.) Protrusion
 - (3.) Retrusion
 - (4.) Lateral excursion
 - (5.) Depression and elevation
 - (6.) Physiologic rest
 - (d.) Normal occlusion
 - (e.) TMJ abnormalities
 - (f.) Relationships of the dental arches
 - (g.) Occlusal plane
 - (h.) Tooth-to-tooth relationships
 - (i.) Malocclusion
 - 2) Application
 - B. Reference
 - 1) Dental Anatomy, UNC, pages 81-95
 - 2) Handouts

- XVIII. The tongue and salivary glands
- A. Classroom lecture - 1 hour
 - 1) Presentation
 - (a.) The tongue
 - (1.) Description
 - (2.) Composition
 - (3.) Functions
 - (4.) Taste sensations
 - (b.) The salivary glands
 - (1.) Description
 - (2.) Function
 - (3.) Types of saliva
 - (4.) The three major salivary glands
 - 2) Application

B. Reference

- 1) Dental Anatomy, UNC, pages 51, 52, 56, and 57
- 2) Handout - The Tongue

XIX. Student Research

- A. Student oral presentations
- B. Written documentation

REQUIRED TEXTBOOKS AND MATERIALS:

Wheeler. An Atlas of Tooth Form. W. B. Saunders Co., Philadelphia, PA.

Sowter, John B. Dental Anatomy. University of North Carolina Press, Chapel Hill, NC.

Linek Tooth Carving Manual. Columbia Dentaform Corp.

Dental Laboratory Technology. AFM 162-6, 1991, Superintendent of Documents. U.S. Government Printing Office, Washington, DC.

Handouts

Materials: Student Instrument Kit (Durham Tech)

STATEMENT FOR STUDENTS WITH DISABILITIES:

Students who require academic accommodations due to any physical, psychological, or learning disability are encouraged to request assistance from a disability services counselor within the first two weeks of class.

Likewise, students who potentially require emergency medical attention due to any chronic health condition are encouraged to disclose this information to a disability services counselor within the first two weeks of class.

Counselors can be contacted by calling 919-536-7207, ext. 1413 or by visiting the Student Development Office in the Phail Wynn Jr. Student Services Center, room 1209.