



# ILLINOIS VALLEY COMMUNITY COLLEGE

## COURSE OUTLINE

**DIVISION:** Health Professions

**COURSE:** DLH 2204 Oral Pathology II

Date: Fall 2023

Credit Hours: 2

*Complete all that apply or mark "None" where appropriate:*

Prerequisite(s): Completion of the Dental Assisting Program Certificate or A.A.S.

Enrollment by assessment or other measure?  Yes  No

If yes, please describe:

Corequisite(s): None

Pre- or Corequisite(s): None

Consent of Instructor:  Yes  No

Delivery Method:	<input checked="" type="checkbox"/> Lecture	2 Contact Hours (1 contact = 1 credit hour)
	<input type="checkbox"/> Seminar	0 Contact Hours (1 contact = 1 credit hour)
	<input type="checkbox"/> Lab	0 Contact Hours (2-3 contact = 1 credit hour)
	<input type="checkbox"/> Clinical	0 Contact Hours (3 contact = 1 credit hour)

Offered:  Fall  Spring  Summer

**CATALOG DESCRIPTION and IAI NUMBER (if applicable):**

This course familiarizes the dental hygiene student with oral anomalies manifested by development, metabolic, and disease disturbances. Emphasis will be placed upon the clinical characteristics of oral pathology along with the histological and morphological study of the diseased or anatomically altered oral structures.

## **ACCREDITATION STATEMENTS AND COURSE NOTES:**

### **Standard 2-8b**

Biomedical science content must include content in anatomy, physiology, chemistry, biochemistry, microbiology, immunology, **general and maxillofacial pathology** and/or pathophysiology, nutrition and pharmacology.

#### **Intent:**

*These subjects provide foundational knowledge for dental and dental hygiene sciences. The subjects are to be of the scope and depth comparable to college transferable liberal arts course work. The program should ensure that biomedical science instruction serves as a foundation for student analysis and synthesis of the interrelationships of the body systems when making decisions regarding oral health services within the context of total body health.*

*Biomedical science instruction in dental hygiene education ensures an understanding of basic biological principles consisting of a core of information on the fundamental structures, functions and interrelationships of the body systems. The biomedical knowledge base emphasizes the orofacial complex as an important anatomical area existing in a complex biological interrelationship with the entire body.*

*Dental hygienists need to understand abnormal conditions to recognize the parameters of comprehensive dental hygiene care. The program should ensure that graduates have the level of understanding that assures that the health status of the patient will not be compromised by the dental hygiene interventions.*

### **Standard 2-8c**

Dental sciences content must include tooth morphology, head, neck and oral anatomy, oral embryology and histology, **oral pathology**, radiography, periodontology, pain management, and dental materials.

#### **Intent:**

*These subjects provide the student with knowledge of oral health and disease as a basis for assuming responsibility for assessing, planning and implementing preventive and therapeutic services. Teaching methodologies should be utilized to assure that the student can assume responsibility for the assimilation of knowledge requiring judgment, decision making skills and critical analysis.*

## **COURSE TOPICS AND CONTENT REQUIREMENTS:**

- I. Introduction to preliminary diagnoses of oral lesions
  - a. Diagnostic process categories
    - i.clinical
    - ii.radiographic
    - iii.historical
    - iv.laboratory
    - v.microscopic
    - vi.surgical
    - vii.therapeutic
    - viii.differential findings
  - b. Clinical diagnoses
  - c. Radiographic diagnoses

- d. Historical diagnoses
  - e. Laboratory diagnoses
  - f. Microscopic diagnosis
  - g. Surgical diagnoses
  - h. Therapeutic diagnoses
  - i. Differential diagnoses
  - j. Periapical cemento-osseous dysplasia (cementoma)
    - i. radiographic appearance
    - ii. historical data
  - k. Leukoplakia
  - l. Erythroplakia
  - m. Diagnoses categories for the following:
    - i. tori
    - ii. squamous cell carcinoma
    - iii. linea alba
    - iv. erythema migrans
    - v. leukoplakia
    - vi. nutritional deficiencies
    - vii. angular cheilitis
    - viii. necrotizing ulcerative gingivitis (NUG)
  - n. "Variant of normal"
    - i. fissured tongue
    - ii. median rhomboid glossitis
    - iii. erythema migrans
  - o. Clinical appearance
    - i. fordyce granules (spots)
    - ii. torus palatinus
    - iii. mandibular tori
    - iv. melanin pigmentation
    - v. retrocuspid papilla
    - vi. lingual varicosities
    - vii. linea alba
    - viii. leukoedema
  - p. Leukoedema and linea alba
    - i. clinical differences
    - ii. histologic differences
  - q. Lingual thyroid
    - i. dysphagia
    - ii. dysphonia
    - iii. dyspnea
  - r. Clinical characteristics
    - i. median rhomboid glossitis (central papillary atrophy)
    - ii. erythema migrans (geographic tongue)
    - iii. fissured tongue
    - iv. hairy tongue
  - s. Periodontium
    - i. Anatomic characteristics
    - ii. Host response
- II. Explain inflammation and repair
- a. Inflammation
    - i. Acute

- ii. Chronic
  - b. Clinical signs of inflammation
    - i. local
    - ii. systemic
    - iii. microscopic events
  - c. White blood cells involved in the inflammatory response
    - i. neutrophils
    - ii. monocytes
  - d. Biochemical mediators involved in inflammation
  - e. Major systemic clinical signs of inflammation
    - i. fever
    - ii. leukocytosis
    - iii. lymphadenopathy
    - iv. elevated levels of c-reactive protein
  - f. Chronic inflammation
  - g. Anti-inflammatory therapy
  - h. Hyperplasia, hypertrophy, and atrophy
  - i. Regeneration and repair
    - i. oral cavity
    - ii. bone
    - iii. differing intentions
  - j. Impair healing
    - i. local factors
    - ii. systemic factors
  - k. Attrition, abrasion, and erosion
  - l. Bruxism, abrasion, and abfraction
  - m. Erosion in bulimia
  - n. Describe the cause, clinical features, and treatment of each of the following: oral mucosal burns, aspirin burns, phenol and other chemical burns, electric burns, thermal burns, lesions from cocaine use and self-induced injuries, hematomas, traumatic ulcers, frictional keratosis, linea alba, and nicotine stomatitis.
  - o. Describe the clinical features, cause (when known), treatment, and microscopic appearance of each of the following: traumatic neuroma, amalgam tattoo, melanosis, oral and labial melanotic macule, solar cheilitis, mucocele, ranula, sialolith, necrotizing sialometaplasia, sialadenitis, pyogenic granuloma, peripheral giant cell granuloma, chronic hyperplastic pulpitis, irritation fibroma, denture-induced fibrous hyperplasia, gingival enlargement, and chronic hyperplastic pulpitis.
  - p. Periapical abscess, a periapical granuloma, and a radicular cyst
  - q. Tooth resorption
    - i. external
    - ii. internal
  - r. Causes and diagnosis
    - i. focal sclerosing osteomyelitis
    - ii. alveolar osteitis
- III. Immunity and immunologic oral lesions
- a. Immune response and an inflammatory response
  - b. Lymphocytes
    - i. B-cell
    - ii. T-cell

- iii. Natural killer (NK)
    - c. B-cell lymphocytes and plasma cells in the production of antibodies
    - d. List and describe the different types of T-cell lymphocytes and their functions
      - i. T-helper
      - ii. T-suppressor
      - iii. T-cytotoxic
      - iv. T-memory
    - e. Natural killer cells
    - f. Macrophages and dendritic cells
    - g. Cytokines
    - h. Humoral immunity and cell-mediated immunity
      - i. Passive and active immunity
    - j. List and describe four types of hypersensitivity reactions
      - i. Type I or anaphylactic type
      - ii. Type II or cytotoxic type
      - iii. Type III or immune complex type
      - iv. Type IV or cell-mediated type
    - k. Autoimmunity
    - l. Immunodeficiency
    - m. Types of aphthous ulcers
      - i. Minor
      - ii. Major
      - iii. Herpetiform
    - n. Systemic diseases associated with aphthous ulcers
    - o. Urticaria, angioedema, contact mucositis, and fixed drug eruption
    - p. Erythema multiforme and Stevens-Johnson syndrome
    - q. Lichen planus
    - r. Reactive arthritis (Reiter syndrome)
    - s. Two cells that characterize Langerhans cell histiocytosis
      - i. Histiocytes
      - ii. Eosinophils
    - t. Radiographic appearance of jaw lesions in Langerhans cell histiocytosis
    - u. Oral manifestations, diagnosis, treatment, and prognosis of each of the following autoimmune diseases: Sjögren syndrome, lupus erythematosus, pemphigus vulgaris, mucous membrane pemphigoid, bullous pemphigoid, and Behçet syndrome
    - v. Desquamative gingivitis
    - w. Behçet syndrome
    - x. Primary and secondary immunodeficiency
    - y. Primary immunodeficiency
    - z. Secondary immunodeficiency
      - i. malnutrition
      - ii. renal diseases
      - iii. HIV infection
      - iv. Diabetes mellitus
- IV. Infectious diseases
  - a. Opportunistic infections
  - b. Inflammatory and an immune response to infection
  - c. Opportunistic infections that can occur in the oral cavity
  - d. Infectious diseases
    - i. Impetigo

- ii. Tuberculosis
    - iii. Actinomycosis
    - iv. Syphilis
      - 1. Primary
      - 2. Secondary
      - 3. Tertiary
    - v. Necrotizing ulcerative gingivitis
    - vi. Pericoronitis
    - vii. Osteomyelitis
      - 1. acute
      - 2. chronic
  - e. Streptococcal tonsillitis, pharyngitis, scarlet fever, and rheumatic fever
  - f. Oral candidiasis
    - i. Pseudomembranous
    - ii. Erythematous
    - iii. Denture stomatitis (chronic atrophic candidiasis)
    - iv. Chronic hyperplastic (Candida leukoplakia)
    - v. Angular cheilitis
  - g. Deep fungal infections
  - h. Mucormycosis
  - i. Human papillomavirus (HPV) infection
    - i. verruca vulgaris
    - ii. condyloma acuminatum
    - iii. focal epithelial hyperplasia
  - j. Herpes simplex virus
    - i. Type 1
    - ii. Type 2
  - k. Herpes labialis
  - l. Recurrent intraoral herpes simplex infection
  - m. Herpes zoster
    - i. skin of the face and oral mucosa
  - n. Epstein-Barr virus
    - i. infectious mononucleosis
    - ii. nasopharyngeal carcinoma
    - iii. Burkitt lymphoma
    - iv. hairy leukoplakia
  - o. Coxsackieviruses
    - i. Herpangina
    - ii. Hand-foot-and-mouth disease
    - iii. Acute lymphonodular pharyngitis
  - p. Measles and mumps
  - q. HIV infection
    - i. diagnoses
    - ii. spectrum
    - iii. initial infection
    - iv. latent infection
    - v. development and diagnosis of AIDS
  - r. Oral manifestations of HIV infection
- V. Developmental disorders
- a. Developmental disorders, inherited disorders, and congenital disorders
  - b. Embryonic development

- i. face
    - ii. oral cavity
    - iii. teeth
  - c. Ankyloglossia, commissural lip pits, and a lingual thyroid
  - d. Odontogenic and nonodontogenic cysts
  - e. Intraosseous cysts and extraosseous cysts
  - f. Odontogenic cysts that are intraosseous
    - i. dentigerous cyst
    - ii. primordial cyst
    - iii. odontogenic keratocyst
    - iv. lateral periodontal cyst
  - g. Odontogenic cysts that are extraosseous
    - i. eruption cyst
    - ii. gingival cyst
  - h. Nonodontogenic cysts that are intraosseous
    - i. nasopalatine duct cyst
    - ii. medial palatal cyst
    - iii. globulomaxillary cyst
    - iv. median mandibular cyst
  - i. Nonodontogenic cysts that are found in the soft tissues of the head, neck, and oral region
    - i. nasolabial cyst
    - ii. branchial cleft cyst
    - iii. epidermal cyst
    - iv. thyroglossal tract cyst
  - j. Abnormalities that affect the number of teeth
    - i. anodontia
    - ii. hypodontia
    - iii. supernumerary teeth
  - k. Abnormalities that affect the size of teeth
    - i. microdontia
    - ii. macrodontia
  - l. Abnormalities that affect the shape of teeth
  - m. Abnormalities that affect the structure of teeth
    - i. enamel hypoplasia
    - ii. enamel hypocalcification
    - iii. endogenous staining of teeth
    - iv. regional odontodysplasia
  - n. Impacted teeth, embedded teeth, and ankylosed teeth
- VI. Genetics related to oral pathology
  - a. Chromosomes
  - b. Purpose of mitosis
  - c. Stages of mitosis
    - i. prophase
    - ii. metaphase
    - iii. anaphase
    - iv. telophase
  - d. Purpose of meiosis
  - e. Steps of meiosis
    - i. first
    - ii. second

- f. Lyon hypothesis
  - g. Molecular composition of chromosomes
    - i. deoxyribonucleic acid
    - ii. ribonucleic acid
  - h. Chromosomal abnormalities
    - i. molecular abnormalities
    - ii. gross abnormalities
      - 1. Trisomy 21
      - 2. Trisomy 13
      - 3. Turner Syndrome
      - 4. Klinefelter Syndrome
  - i. Inheritance patterns
    - i. autosomal dominant
    - ii. autosomal recessive
    - iii. X-linked dominant
    - iv. X-linked recessive
  - j. Inheritance pattern and the oral manifestations: cyclic neutropenia, chronic neutropenia, Papillon-Lefèvre syndrome, focal palmoplantar and gingival hyperkeratosis, gingival fibromatosis, and Laband syndrome
  - k. Inheritance pattern and oral manifestations: cherubism, Ellis–van Creveld syndrome (chondroectodermal dysplasia), cleidocranial dysplasia, Gardner syndrome, mandibulofacial dysostosis (Treacher Collins syndrome), nevoid basal cell carcinoma syndrome, osteogenesis imperfecta, torus mandibularis, torus palatinus, and maxillary exostosis
  - l. Inheritance pattern and oral manifestations: cleft lip and palate, hereditary hemorrhagic telangiectasia (Osler-Rendu–Parkes Weber syndrome), multiple mucosal neuroma syndrome, pheochromocytoma, neurofibromatosis of von Recklinghausen, Peutz-Jeghers syndrome, and white sponge nevus (Cannon disease)
  - m. Inheritance pattern and oral manifestations: amelogenesis imperfecta, dentinogenesis imperfecta, dentin dysplasia, hypohidrotic ectodermal dysplasia, hypophosphatasia, hypophosphatemic vitamin D–resistant rickets, pegged or absent maxillary lateral incisors, and taurodontism
- VII. Neoplasia
- a. Neoplasia
  - b. Classification of tumors
    - i. benign tumor
    - ii. malignant tumor
  - c. Prefixes and suffixes
  - d. Tissue or cell of origin of tumors
  - e. Treatment of tumors
  - f. List and describe the three different types of epithelial tumors in the oral cavity
    - i. Tumors derived from squamous epithelium
    - ii. Tumors derived from salivary gland epithelium
    - iii. Tumors derived from odontogenic epithelium
  - g. Tumors of squamous epithelium
    - i. papilloma
    - ii. squamous cell carcinoma
    - iii. verrucous carcinoma
    - iv. basal cell carcinoma

- h. Leukoplakia and erythroplakia
  - i. Epithelial dysplasia
  - j. Salivary gland tumors
    - i. pleomorphic adenoma
    - ii. monomorphic adenoma
    - iii. mucoepidermoid carcinoma
    - iv. adenoid cystic carcinoma
  - k. Odontogenic tumors
    - i. ameloblastoma
    - ii. calcifying epithelial odontogenic tumor
    - iii. adenomatoid odontogenic tumor
    - iv. calcifying cystic odontogenic tumor
    - v. odontogenic myxoma
    - vi. central cementifying
    - vii. ossifying fibromas
    - viii. benign cementoblastoma
    - ix. ameloblastic fibroma
    - x. ameloblastic fibro-odontoma
    - xi. odontoma
  - l. Peripheral odontogenic tumors
    - i. lipoma, neurofibroma, schwannoma, granular cell tumor, congenital epulis, rhabdomyosarcoma, hemangioma (benign vascular malformation), lymphangioma, and Kaposi sarcoma
  - m. Tumors of melanin-producing cells
    - i. melanocytic nevi and melanoma
  - n. Tumors of bone and cartilage
    - i. osteoma, osteosarcoma, chondrosarcoma, leukemia, lymphoma, and multiple myeloma
  - o. Metastatic tumors
- VIII. Nonneoplastic diseases of bone
- a. Dysplasia
  - b. Benign fibro-osseous lesions
  - c. Clinical, radiographic, and microscopic features
    - i. periapical cemento-osseous dysplasia
    - ii. florid cemento-osseous dysplasia
    - iii. focal cemento-osseous dysplasia
  - d. Monostotic fibrous dysplasia with polyostotic fibrous dysplasia
  - e. Radiographic appearance, microscopic appearance, and treatment
    - i. fibrous dysplasia of the jaws with those of ossifying fibroma of the jaws
  - f. Polyostotic fibrous dysplasia
  - g. Paget disease of bone
    - i. clinical and radiographic appearance
  - h. Central giant cell granuloma and an aneurysmal bone cyst
  - i. Osteomalacia and rickets
- IX. Oral manifestations of systemic disease
- a. Biologic basis of occlusal function
  - b. Gigantism and acromegaly
  - c. Hyperthyroidism and hypothyroidism
  - d. Primary and secondary hyperparathyroidism
  - e. Diabetes
    - i. uncontrolled diabetic state

- ii.type 1
    - iii.type 2
    - iv.treatment
  - f. Addison disease
  - g. Cushing syndrome
  - h. Laboratory findings, oral manifestations, diagnosis, and treatment of the following blood disorders: iron deficiency anemia, pernicious anemia, thalassemia, sickle cell anemia, aplastic anemia, and polycythemia
  - i. Clinical features, oral manifestations, diagnosis, and treatment of agranulocytosis and cyclic neutropenia
  - j. Leukemia
    - i.acute
    - ii.chronic
  - k. Celiac disease
  - l. Bleeding disorders
    - i.platelet count
    - ii.bleeding time
    - iii.prothrombin time
    - iv.partial thromboplastin time
    - v.international normalized ratio
  - m. Thrombocytopenic purpura
  - n. Oral manifestations
    - i.thrombocytopenia purpura
    - ii.nonthrombocytopenic purpura
  - o. Hemophilia
  - p. Therapy for oral cancer
  - q. Radiation therapy
    - i.radiation-induced xerostomia
  - r. List two drugs that are associated with gingival enlargement
    - i.Phenytoin (Dilantin)
    - ii.Nifedipine (Procardia)
  - s. Bisphosphonate-associated osteonecrosis of the jaw
- X. Orofacial pain and temporomandibular disorders
  - a. Burning mouth disorder
  - b. Trigeminal neuralgia
  - c. Bell's palsy (idiopathic facial paralysis)
  - d. Function of the muscles of mastication
  - e. Normal function of the temporomandibular joint
  - f. Epidemiology of temporomandibular disorders
  - g. Pathophysiology of temporomandibular disorders
  - h. Orofacial pain not including dental conditions and temporomandibular disorders
  - i. Symptoms of temporomandibular dysfunction
  - j. Comprehensive examination of a patient in relation to temporomandibular disorders
  - k. Imaging techniques useful for evaluating the temporomandibular joint
  - l. Types of temporomandibular disorders
    - i.Masticatory muscle disorder
    - ii.Internal derangement
    - iii.Arthritis
    - iv.TMJ mobility disorders

- v. Neoplasia
- m. Treatment goals for myofascial pain and dysfunction, internal derangement, and arthritis of the temporomandibular joint

### **INSTRUCTIONAL METHODS:**

Traditional Lecture  
Flipped Classroom  
Case Studies  
Class Discussion  
Visual Aides

### **EVALUATION OF STUDENT ACHIEVEMENT:**

Demonstration  
Group and Individual Projects  
Research Paper

A= 89.5-100  
B= 79.5-89.4  
C= 69.5-79.4  
D= 59.5-69.4  
F= 59.4 and below

### **INSTRUCTIONAL MATERIALS:**

#### **Textbooks**

Oral Pathology for the Dental Hygienist: With General Pathology Introductions, Ibsen, Peters, 8<sup>th</sup> Edition, 2023.

#### **Resources**

- Evolve Elsevier Resources
  - Case Studies
  - Practice Exams
  - Printable Synopsis Tables
- Oral Pathology in Clinical Dental Practice, Marx, 2017

### **LEARNING OUTCOMES AND GOALS:**

#### **Institutional Learning Outcomes**

- 1) Communication – to communicate effectively;
- 2) Inquiry – to apply critical, logical, creative, aesthetic, or quantitative analytical reasoning to formulate a judgement or conclusion;
- 3) Social Consciousness – to understand what it means to be a socially conscious person, locally and globally;
- 4) Responsibility – to recognize how personal choices affect self and society.

#### **Course Outcomes and Competencies**

1. Discuss the introduction to preliminary diagnoses of oral lesions
  - 1.1. Define leukoplakia and erythroplakia
  - 1.2. For the following lesions, state all of the diagnostic categories that can contribute to the diagnosis: tori, squamous cell carcinoma, linea alba, erythema

- migrans, leukoplakia, nutritional deficiencies, angular cheilitis, and necrotizing ulcerative gingivitis (NUG)
- 1.3. Define “variant of normal” and give three examples of these lesions involving the tongue
  - 1.4. Describe the clinical appearance of Fordyce granules (spots), torus palatinus, mandibular tori, melanin pigmentation, retrocuspid papilla, lingual varicosities, linea alba, and leukoedema and identify them in the clinical setting or on a clinical illustration
  - 1.5. Describe the clinical and histologic differences between leukoedema and linea alba
  - 1.6. Define lingual thyroid and list three symptoms associated with it
  - 1.7. List and describe the clinical characteristics and identify a clinical picture of median rhomboid glossitis (central papillary atrophy), erythema migrans (geographic tongue), fissured tongue, and hairy tongue
2. Explain inflammation and repair
    - 2.1. Describe the differences between acute and chronic inflammation
    - 2.2. List and describe the major local and systemic clinical signs of inflammation
    - 2.3. Describe how the microscopic events are associated with each of the major clinical signs of inflammation
    - 2.4. List the white blood cells that are involved in the inflammatory response and describe how each is involved
    - 2.5. List and describe the biochemical mediators involved in inflammation
    - 2.6. List and describe the four major systemic clinical signs of inflammation
    - 2.7. Discuss chronic inflammation, as well as anti-inflammatory therapy
    - 2.8. Define and contrast hyperplasia, hypertrophy, and atrophy
    - 2.9. Compare and contrast the concepts of regeneration and repair
    - 2.10. Describe the microscopic events that occur during repair in the oral cavity
    - 2.11. Describe the microscopic events that occur during healing in bone
    - 2.12. Describe and contrast healing by differing intentions
    - 2.13. List local and systemic factors that can impair healing
    - 2.14. Describe and contrast attrition, abrasion, and erosion
    - 2.15. Describe the relationship between bruxism, abrasion, and abfraction
    - 2.16. Describe the pattern of erosion seen in bulimia
    - 2.17. Describe the cause, clinical features, and treatment of each of the following: oral mucosal burns, aspirin burns, phenol and other chemical burns, electric burns, thermal burns, lesions from cocaine use and self-induced injuries, hematomas, traumatic ulcers, frictional keratosis, linea alba, and nicotine stomatitis.
    - 2.18. Describe the clinical features, cause (when known), treatment, and microscopic appearance of each of the following: traumatic neuroma, amalgam tattoo, melanosis, oral and labial melanotic macule, solar cheilitis, mucocele, ranula, sialolith, necrotizing sialometaplasia, sialadenitis, pyogenic granuloma, peripheral giant cell granuloma, chronic hyperplastic pulpitis, irritation fibroma, denture-induced fibrous hyperplasia, gingival enlargement, and chronic hyperplastic pulpitis.
    - 2.19. Describe and differentiate among a periapical abscess, a periapical granuloma, and a radicular cyst
    - 2.20. Discuss tooth resorption, both external and internal

- 2.21. Discuss the causes and diagnosis of focal sclerosing osteomyelitis and alveolar osteitis
3. Explain immunity and immunologic oral lesions
  - 3.1. Describe the differences between an immune response and an inflammatory response.
  - 3.2. List the three main types of lymphocytes and their origins
  - 3.3. Describe the involvement of B-cell lymphocytes and plasma cells in the production of antibodies.
  - 3.4. List and describe the different types of T-cell lymphocytes and their functions
  - 3.5. Describe the functions of natural killer cells
  - 3.6. Describe the origin of macrophages and dendritic cells and list their activities in the immune response
  - 3.7. Describe where cytokines are produced and the roles they play in the immune response.
  - 3.8. Describe the differences between humoral immunity and cell-mediated immunity and include the cells involved in each.
  - 3.9. Describe the differences between passive and active immunity and give an example for each type of immunity.
  - 3.10. List and describe four types of hypersensitivity reactions and give an example for each type of hypersensitivity
  - 3.11. Define autoimmunity and describe how it results in disease
  - 3.12. Define immunodeficiency and describe how it results in disease
  - 3.13. Describe and contrast the clinical features of each of the three types of aphthous ulcers.
  - 3.14. Describe the diagnosis, treatment, and prognosis of aphthous ulcers.
  - 3.15. List systemic diseases associated with aphthous ulcers.
  - 3.16. Describe and compare the clinical features of urticaria, angioedema, contact mucositis, and fixed drug eruption.
  - 3.17. Describe the clinical features of erythema multiforme and Stevens-Johnson syndrome.
  - 3.18. Describe the clinical and microscopic features of lichen planus
  - 3.19. Name and describe the types of lichen planus.
  - 3.20. Discuss the diagnosis, treatment, and prognosis of lichen planus.
  - 3.21. List the triad of systemic signs that comprise reactive arthritis (Reiter syndrome) and describe the oral lesions that occur in this condition.
  - 3.22. Name the two cells that characterize Langerhans cell histiocytosis microscopically and describe the radiographic appearance of jaw lesions in Langerhans cell histiocytosis.
  - 3.23. Describe the oral manifestations, diagnosis, treatment, and prognosis of each of the following autoimmune diseases: Sjögren syndrome, lupus erythematosus, pemphigus vulgaris, mucous membrane pemphigoid, bullous pemphigoid, and Behçet syndrome
  - 3.24. Define desquamative gingivitis, describe the clinical features, and list three diseases in which desquamative gingivitis may occur
  - 3.25. Describe the clinical features of Behçet syndrome.
  - 3.26. Describe the difference between primary and secondary immunodeficiency
4. Explain infectious diseases
  - 4.1. Describe the factors that allow opportunistic infections to develop
  - 4.2. List two examples of opportunistic infections that can occur in the oral cavity.

- 4.3. For each of the following infectious diseases, name the organism causing it, list the route or routes of transmission of the organism and the oral manifestations of the disease, and describe how the diagnosis is made: impetigo, tuberculosis, actinomycosis, syphilis (primary, secondary, tertiary), necrotizing ulcerative gingivitis, pericoronitis, and osteomyelitis (acute and chronic). • Describe the relationship between streptococcal tonsillitis, pharyngitis, scarlet fever, and rheumatic fever.
- 4.4. List and describe four forms of oral candidiasis
- 4.5. Discuss deep fungal infections
- 4.6. Discuss how a human papillomavirus (HPV) infection occurs
- 4.7. List and describe the three benign lesions caused by HPV infections in the oral cavity: verruca vulgaris, condyloma acuminatum, and focal epithelial hyperplasia
- 4.8. Discuss the two major types of the herpes simplex virus
- 4.9. Describe the clinical features of herpes labialis.
- 4.10. Describe the clinical features of recurrent intraoral herpes simplex infection and compare them with the clinical features of minor aphthous ulcers
- 4.11. Describe the clinical characteristics of herpes zoster when it affects the skin of the face and oral mucosa
- 4.12. List and describe four diseases associated with the Epstein-Barr virus
- 4.13. List and describe two diseases caused by coxsackieviruses that have oral manifestations, and state the routes of transmission of coxsackieviruses
- 4.14. Describe measles and mumps
- 4.15. Describe how HIV infection is diagnosed
- 4.16. Describe the spectrum of HIV disease, including initial infection, latent infection, and the development and diagnosis of AIDS
- 4.17. List and describe the clinical appearance of five oral manifestations of HIV infection.
5. Explain developmental disorders
  - 5.1. Compare and contrast developmental disorders, inherited disorders, and congenital disorders
  - 5.2. Describe the embryonic development of the face, oral cavity, and teeth
  - 5.3. Discuss developmental soft tissue abnormalities such as ankyloglossia, commissural lip pits, and a lingual thyroid
  - 5.4. Describe the differences between odontogenic and nonodontogenic cysts
  - 5.5. Distinguish between intraosseous cysts and extraosseous cysts
6. Explain genetics related to oral pathology
  - 6.1. Define and discuss chromosomes
  - 6.2. Explain the four stages of mitosis
  - 6.3. Explain the two steps of meiosis
  - 6.4. Explain what is meant by the Lyon hypothesis and give an example of its clinical significance
  - 6.5. Discuss the molecular composition of chromosomes, including deoxyribonucleic acid and ribonucleic acid
  - 6.6. State the inheritance pattern and describe the oral manifestations and, if appropriate, the characteristic facies for each of the following inherited disorders affecting the teeth: amelogenesis imperfecta, dentinogenesis imperfecta, dentin dysplasia, hypohidrotic ectodermal dysplasia,

hypophosphatasia, hypophosphatemic vitamin D-resistant rickets, pegged or absent maxillary lateral incisors, and taurodontism

7. Explain neoplasia
  - 7.1. Describe neoplasia, including its causes
  - 7.2. Explain the classification of tumors, including the difference between a benign tumor and a malignant tumor
  - 7.3. Discuss how prefixes and suffixes are combined to form names of tumors, as well as give examples
  - 7.4. List tumors according to their tissue or cell of origin
  - 7.5. Discuss the different ways in which tumors are treated
  - 7.6. List and describe the three different types of epithelial tumors in the oral cavity
  - 7.7. Define tumors of squamous epithelium
  - 7.8. Explain the concept of epithelial dysplasia and the microscopic significance of this premalignant condition
  - 7.9. Define salivary gland tumors
  - 7.10. Define odontogenic tumors
  - 7.11. Define peripheral odontogenic tumors
  - 7.12. Define tumors of melanin-producing cells
  - 7.13. Describe metastatic tumors
8. Explain nonneoplastic diseases of bone
  - 8.1. Define dysplasia as it relates to bone diseases and differentiate the term from epithelial dysplasia
  - 8.2. Define benign fibro-osseous lesions and list the benign fibro-osseous lesions that occur in the jawbones
  - 8.3. Compare and contrast the radiographic appearance, microscopic appearance, and treatment of fibrous dysplasia of the jaws with those of ossifying fibroma of the jaws
  - 8.4. Compare and contrast the three types of polyostotic fibrous dysplasia
  - 8.5. Describe the microscopic appearance of Paget disease of bone and describe its clinical and radiographic appearance when the maxilla or mandible is involved.
  - 8.6. Describe the clinical, radiographic, and microscopic features of both the central giant cell granuloma and an aneurysmal bone cyst
  - 8.7. Describe the cause of osteomalacia and rickets
9. Explain oral manifestations of systemic disease
  - 9.1. Describe the biologic basis of occlusal function
  - 9.2. Describe the difference between gigantism and acromegaly and list the physical characteristics of each
  - 9.3. State the oral manifestations of hyperthyroidism and hypothyroidism
  - 9.4. Describe the difference between primary and secondary hyperparathyroidism
  - 9.5. List the oral and systemic manifestations that occur in the uncontrolled diabetic state
  - 9.6. List the major clinical characteristics and oral manifestations of type 1 and type 2 diabetes
  - 9.7. Discuss treatment options for diabetes
  - 9.8. Define Addison disease, state some systemic features, and describe the changes that occur on the skin and oral mucosa in a patient with Addison disease
  - 9.9. Discuss Cushing syndrome

- 9.10. Compare and contrast the cause, laboratory findings, oral manifestations, diagnosis, and treatment of each of the following blood disorders: iron deficiency anemia, pernicious anemia, thalassemia, sickle cell anemia, aplastic anemia, and polycythemia
- 9.11. Describe the clinical features, oral manifestations, diagnosis, and treatment of both agranulocytosis and cyclic neutropenia
- 9.12. Discuss leukemia, and compare and contrast acute and chronic leukemia
- 9.13. Describe the clinical features, oral manifestations, diagnosis, and treatment of celiac disease
- 9.14. Discuss bleeding disorders and state the purpose of each of the following laboratory tests: platelet count, bleeding time, prothrombin time, partial thromboplastin time, and international normalized ratio
- 9.15. List two causes of thrombocytopenic purpura.
- 9.16. Describe the oral manifestations of thrombocytopenia and nonthrombocytopenic purpura
- 9.17. Define hemophilia, discuss the types of hemophilia, and describe its oral manifestations and treatment
- 9.18. Discuss the oral manifestations of therapy for oral cancer
- 9.19. Discuss radiation therapy, and describe the oral problems that would be expected to occur in a patient with radiation-induced xerostomia
- 9.20. List two drugs that are associated with gingival enlargement
- 9.21. Describe the criteria used to define bisphosphonate-associated osteonecrosis of the jaw
10. Explain orofacial pain and temporomandibular disorders
  - 10.1. Describe the clinical features, oral manifestations, diagnosis, and treatment of burning mouth disorder
  - 10.2. Describe the clinical features, diagnosis, and treatment of trigeminal neuralgia.
  - 10.3. Describe the clinical features, diagnosis, and management of Bell's palsy (idiopathic facial paralysis)
  - 10.4. Describe the epidemiology of temporomandibular disorders
  - 10.5. Discuss the pathophysiology of temporomandibular disorders
  - 10.6. List at least two symptoms that are suggestive of temporomandibular dysfunction
  - 10.7. Describe what is involved in a comprehensive examination of a patient in relation to temporomandibular disorders
  - 10.8. List and describe the five types of temporomandibular disorders
  - 10.9. Discuss the treatment goals for myofascial pain and dysfunction, internal derangement, and arthritis of the temporomandibular joint