PERIODONTOLOGY (DHYG 1311-3A1)

CREDIT
3 Semester Credit Hours (Lecture)

MODE OF INSTRUCTION
Face to Face

PREREQUISITE/CO-REQUISITE:
Prerequisite: DHYG 1301, 1227, 1431, 1304, 1207, 1219, 1235, 1260, & 2301
Co-Requisite: DHYG 1339, 2261, & 2331

COURSE DESCRIPTION
Normal and diseased periodontium including the structural, functional, and environmental factors. Emphasis on etiology, pathology, treatment modalities, and therapeutic and preventive periodontics.

COURSE OBJECTIVES
Upon completion of this course, the student will be able to:

- Contrast normal and abnormal periodontium
- Analyze the etiology and pathology of periodontal diseases
- Differentiate treatment modalities used for therapy and prevention
- Interpret periodontal assessment data to develop a dental hygiene care plan

INSTRUCTOR CONTACT INFORMATION

Instructor:	Michelle DeMoss
Email:	mdemoss@lit.edu
Office Phone:	409-247-4759
Office Location:	MPC 209
Office Hours:	Monday, 1:00-3:00 pm
	Tuesday, 12:00-1:00 pm

REQUIRED TEXTBOOK AND MATERIALS

- Gehrig, JS & Shin, DE. (2023). *Foundations of Periodontics for the Dental Hygienist* (6th edition). Jones & Bartlett Learning. ISBN: 9781284289367 (eBook), 9781284261059 (paperback)

REFERENCES

- Boyd, LD & Mallonee, LF. (2023). *Wilkins' Clinical Practice of the Dental Hygienist* (14th edition). Jones & Bartlett Learning.
- Newman, MG, Klokkevold, PR, Carranza, FA, et al. (2024). *Newman and Carranza's Clinical Periodontology and Implantology* (14th edition). Elsevier.
- Pieren JA, Gadbury-Amyot C. (2024). *Darby & Walsh Dental Hygiene: Theory and Practice* (6th edition). Elsevier.

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.

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.

DROP POLICY

If you wish to drop a course, you are responsible for initiating and completing the drop process. If you stop coming to class and fail to drop the course, you will earn an "F" in the course.

COURSE CALENDAR

DATE	TOPIC	READING/ ASSIGNMENTS
UNIT 1: -The Periodontium in Health -Diseases Affecting the Periodontium and Peri-Implant Tissues		
Week 1	Course Introduction Ch 1. Periodontium: The Tooth-Supporting Structures Ch 2. Microscopic Anatomy of the Periodontium	Review Course information & syllabus Text: Ch 1, 2 **Course contract due**
Labor Day	No Class	
Week 2	Ch 3. Overview of Diseases of the Periodontium Ch 4. Classification of Periodontal and Peri-Implant Diseases and Conditions Pgs. 447-449 Clinical Attachment Level	Text: Ch 3, 4, & pgs. 447-449
Week 3	Ch. 5 Periodontal Health and Gingival Diseases/ Conditions Ch. 6 Periodontitis	Text: Ch 5, 6
Week 4	Ch. 7 Mucogingival Deformities and Conditions Around Teeth Ch. 8 Peri-implant Health and Diseases Ch. 9 Acute Periodontal Diseases	Text: Ch 7, 8, 9 **Part 1 Periodontal Care Plan due**
EXAM 1 9/29	**Unit 1 Exam** ***On-campus, 8:00-9:00 am***	**Ch 1-9, & p 447-449**
UNIT 2: -Assessment and Planning for Patients with Periodontal Diseases and Peri-Implant Diseases		
Week 5	Ch. 24 Best Practices for Periodontal Care	Text: Ch 24 Discussion: Periodontal Article Review
Week 6	Ch. 19 Clinical Periodontal Assessment Ch. 20 Radiographic Analysis of the Periodontium Ch. 21 Clinical Decision-Making for Periodontal Care	Text: Ch 19, 20, 21
	Unit 2 Exam	**Ch. 19, 20, 21 & 24**
UNIT 3: -Etiologic Factors for Periodontal Diseases and Peri-Implant Disease/ Conditions		
Week 7	Ch 10. Risk Factors for Periodontal Disease	Text: Ch 10 **Perio Article Review due**

Week 8	Ch 11. Oral Biofilms Ch 12. Basic Concepts of Immunity and Inflammation	Text: Ch 11, 12
Week 9	Ch 13. Host Immunoinflammatory Response to Dental Biofilm Ch 14. Impact of Systemic Conditions on Periodontal Health Ch 15. Impact of Periodontal Inflammation on Systemic Health	Text: Ch 13, 14, 15 **Class presentations**
Week 10	Ch 16. Local Factors Contributing to Periodontal Disease Ch 17. Tobacco, Smoking, and Periodontal Disease Ch 18. Nutrition, Inflammation, and Periodontal Disease	Text: Ch 16, 17, 18 **Class presentations**
	Unit 3 Exam	**Ch: 10-18**
UNIT 4: -Implementation of Therapy for Patients with Periodontal Diseases and Peri-Implant Diseases/Conditions		
Week 11	Ch 25. Nonsurgical Periodontal Therapy	Text: Ch 25
Week 12	Ch 26. Patient's Role in Nonsurgical Periodontal Therapy Ch 27. Supragingival and Subgingival Irrigation Ch 28. Chemotherapeutics in Periodontal Care Ch 29. Host Modulation Therapy	Text: Ch 26, 27, 28, 29 **Periodontal Office Observation due**
Week 13	Ch 30. Periodontal Surgical Concepts for the Dental Hygienist Ch 31. Maintenance for the Periodontal Patient	Text: Ch 30, 31 **Part 2 Periodontal Care Plan due** **E-Portfolio Assignment due**
	Unit 4 Exam	**Ch. 25- 31**
Week 14 Last class day	Ch 33. Future Directions for Management of Periodontal Patients Semester Review	Text: Ch 33
Week 15	**Comprehensive Final Exam**	

COURSE EVALUATION

Final grades will be calculated according to the following criteria

Examinations (5) (4 Unit exams + 1 Final Exam)	60%
Assignments and quizzes	10%
Periodontal Care Plans (2)	20%
Periodontal Article Review	5%
Class Presentation: Periodontal Risk Factors	5%

GRADE SCALE

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

TECHNICAL REQUIREMENTS

The latest technical requirements, including hardware, compatible browsers, operating systems, etc. can be found online at https://lit.edu/lit-online/lit-online-experience. A functional internet connection or Wi-Fi is necessary to maximize the use of online technology and resources.

DISABILITIES STATEMENT

The Americans with Disabilities Act of 1990 and Section 504 of the 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 Americans with Disabilities 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) 247-0046 or email specialpopulations@lit.edu. You may also visit the online resource at Special Populations - Lamar Institute of Technology (lit.edu).

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. Please note that the online version of the *LIT Catalog and Student Handbook* supersedes all other versions of the same document.

ARTIFICIAL INTELLIGENCE STATEMENT

Lamar Institute of Technology (LIT) recognizes the recent advances in Artificial Intelligence (AI), such as ChatGPT, have changed the landscape of many career disciplines and will impact many students in and out of the classroom. To prepare students for their selected careers, LIT desires to guide students in the ethical use of these technologies and incorporate AI into classroom instruction and assignments appropriately. Appropriate use of these technologies is at the discretion of the instructor. Students are reminded that all submitted work

must be their own original work unless otherwise specified. Students should contact their instructor with any questions as to the acceptable use of AI/ChatGPT in their courses

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.

ADDITIONAL COURSE POLICIES/INFORMATION

STUDENT EXPECTED TIME REQUIREMENT

For every hour in class (or unit of credit), students should expect to spend at least two to three hours per week studying and completing assignments. For a 3-credit-hour class, students should prepare to allocate approximately six to nine hours per week outside of class in a 16- week session.

ACADEMIC DISHONESTY

Students found to be committing academic dishonesty (cheating, plagiarism, or collusion) may receive disciplinary action. Students need to familiarize themselves with the institution's Academic Dishonesty Policy available in the Student Catalog & Handbook at http://catalog.lit.edu/content.php?catoid=3&navoid=80#academic-dishonesty.

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. Students are not permitted to ask questions during an exam.

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. **You may not copy, reproduce, distribute or publish any quiz or exam questions**. This action may result to dismissal from the program.

Respondus Lockdown Browser and Respondus Monitor may be used for quizzes and examinations taken off campus, therefore, a webcam is required. The student is required to show the testing environment at the beginning of the test 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. If you need online assistance while taking the test, please call the Blackboard 24/7 Support Desk at (936) 294-4395 or send an email to lit-bbsupport@lit.edu.

Respondus Lockdown Browser will be used for examinations administered on campus. The student is required to bring their own portable electronic device for any scheduled on-campus exams, unless a testing lab is being utilized. Approved devices include a personal laptop, tablet, or ipad.

Mandatory Tutoring and Remediation

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

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, 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. Students are not permitted to discuss the content of the examination with anyone at any time.

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.

ELECTRONIC DEVICES

Portable electronic devices may only be used in class or lab for accessing approved course content (eBooks, slides, publisher content, Blackboard, etc.). Texting or web browsing will not be allowed during class, lab, or clinic. Students are prohibited from recording instructors during class without the consent of the instructor (audio or video).

LATE COURSEWORK

Assignments, Quizzes and Tests must be completed by the due date. Late submissions or completion will not be accepted and will result in a zero for that assignment/quiz/test.

REMEDIATION

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

* Faculty has the authority to modify the above policies if unusual circumstances mandate a change. Please refer to the Dental Hygiene Student Handbook for a complete listing of program policies.

COURSE OUTLINE

Periodontium: The Tooth-Supporting Structures

a. Tissues of the periodontium
b. Nerve supply, blood supply, and lymphatic system

Microscopic Anatomy of the Periodontium

a. Histology of the body's tissues
b. Histology of the gingiva
c. Histology of root cementum and alveolar bone

Overview of Diseases of the Periodontium

a. The Periodontium in health and disease
b. Pathogenesis of Bone Destruction
c. Periodontal pockets
d. Theories of disease progression
e. Epidemiology of the diseases of the periodontium

Classification of Periodontal and Peri-Implant Diseases and Conditions

a. Disease classification systems
b. The 2017 Classification of Periodontal and Peri-implant Diseases and Conditions

Periodontal Health and Gingival Diseases/Conditions

a. Periodontal health/ gingival health
b. Dental biofilm-induced gingivitis
c. Non-dental biofilm-induced gingival diseases and conditions

Periodontitis

a. Periodontitis
b. Periodontitis Staging and Grading System

Mucogingival Deformities and Conditions Around Teeth

a. Overview of mucogingival deformities and conditions
b. Normal mucogingival condition and periodontal biotype
c. Recession of the gingival margin
d. Classification systems for recession of the gingival margin
e. Treatment considerations for gingival recession defects

Peri-Implant Health and Diseases

a. Anatomy of the dental implant and surrounding peri-implant tissues
b. Peri-implant health, diseases, and conditions
c. Recognition of peri-implant diseases
d. Clinical and radiographic monitoring of peri-implant health and diseases
e. Guidelines for maintenance of patients with dental implants

Acute Periodontal Conditions

a. Introduction to acute periodontal diseases
b. Abscesses of the periodontium
c. Endodontic-periodontal lesions (EPL)
d. Necrotizing periodontal diseases
e. Primary herpetic gingivostomatitis

Best Practices for Periodontal Care

a. What is best practice?
b. Role of evidence-based decision making in best practice
c. Finding clinically relevant information
d. Lifelong learning skills for best practice

Clinical Periodontal Assessment

a. Overview of the periodontal assessment process
b. The comprehensive periodontal assessment
c. Periodontal screening examination
d. Supplemental diagnostic tests

Radiographic Analysis of the Periodontium

a. Radiographic appearance of the periodontium
b. Use of radiographic images during periodontal evaluation

Clinical Decision-Making for Periodontal Care

a. Guidelines for arriving at a periodontal diagnosis
b. Guidelines for periodontal treatment sequencing
c. The need for ongoing decision-making

Risk Factors for Periodontal Disease

a. Risk factors for periodontal disease
b. Balance between periodontal health and disease
c. Periodontal risk assessment

Oral Biofilms

a. Microbial biofilms
b. The Structure and colonization of oral biofilms
c. The role of bacteria in periodontal disease

Basic Concepts of Immunity and Inflammation

a. The body's defense system
b. Leukocyte migration, chemotaxis, and phagocytosis
c. The inflammatory process

Host Immunoinflammatory Response to Dental Biofilm

a. The host response in periodontal disease
b. Histologic stages in the development of periodontal disease
c. The impact of host immunoinflammatory response on bone homeostasis

Impact of Systemic Conditions on Periodontal Health

a. The burden of systemic disorders on the oral cavity
b. Systemic disorders as risk factors for periodontitis
c. Systemic medications with periodontal side effects

Impact of Periodontal Inflammation on Systemic Health

a. Linking periodontitis with systemic disease
b. The role of periodontitis on systemic diseases

Local Factors Contributing to Periodontal Disease

a. Introduction to local contributing factors
b. Local factors that increase biofilm retention
c. Dental restorations as local factors
d. Local factors that cause direct damage

Tobacco, Smoking, and Periodontal Disease
a. Nicotine dependence and addiction
b. Categories of smoking delivery products
c. Smoking as a risk factor for periodontal disease
d. Cannabis as a risk factor for periodontal disease
e. Smoking and peri-implant disease
f. Smoking cessation for the periodontal patient

Nutrition, Inflammation, and Periodontal Disease
a. Association between obesity and periodontal disease
b. Micronutrients, antioxidants, and periodontal disease
c. Macronutrients and periodontal disease

Nonsurgical Periodontal Therapy
a. Overview of nonsurgical periodontal therapy (NSPT)
b. Mechanical nonsurgical therapy
c. Decisions following nonsurgical therapy

Patients Role in Nonsurgical Periodontal Therapy
a. Patient self-care in nonsurgical therapy
b. Types of toothbrushes
c. The effectiveness of various interproximal cleaning modalities
d. Tongue cleaning as an adjunct

Supragingival and Subgingival Irrigation
a. Patient-applied power-driven irrigation devices
b. Professional subgingival irrigation

Chemotherapeutics in Periodontal Care
a. Introduction to chemical agents in biofilm control
b. Use of systemic antibiotics to control biofilm
c. Use of locally delivered chemotherapeutic agents
d. Topical mouth rinses and toothpastes
e. Educating patients on the use of complimentary/ alternative medicine (CAM) dental products/ remedies/ practices

Host Modulation Therapy
a. Introduction to host modulation therapy
b. Potential host modulating therapies in periodontal patients
c. Host modulation therapy as part of comprehensive periodontal patient management

Periodontal Surgical Concepts for the Dental Hygienist
a. Introduction to periodontal surgery
b. Understanding the periodontal flap
c. Descriptions of common types of periodontal surgery
d. Biological enhancement of surgical outcomes

e. Patient management following periodontal surgery

Maintenance for the Periodontal Patient

a. Introduction to periodontal maintenance therapy
b. Planning and implementing periodontal maintenance therapy
c. Periodontal disease recurrence
d. Patient compliance with periodontal maintenance
e. Root caries as a complication during periodontal maintenance

Future Directions for Management of Periodontal Patients

a. Contemporary and evolving diagnostic technology
b. Periodontal disease/systemic disease connections
c. Research in dental implantology
d. Treatment modalities in periodontal care

COURSE OBJECTIVES

PERIODONTIUM: THE TOOTH-SUPPORTING STRUCTURES

1-1 Identify the tissues of the periodontium on an unlabeled drawing depicting the periodontium in cross section.
1-2 Describe the function that each tissue serves in the periodontium, including the gingiva, periodontal ligament, cementum, and alveolar bone.
1-3 In a clinical setting or on a color photograph, identify the following anatomical areas of the gingiva in the oral cavity: free gingiva, gingival sulcus, interdental gingiva, and attached gingiva.
1-4 In a clinical setting or on a color photograph, identify the following boundaries of the gingiva: gingival margin, free gingival groove, and mucogingival junction.
1-5 In a clinical setting, identify the free gingiva on an anterior tooth by inserting a periodontal probe to the base of the sulcus.
1-6 In a clinical setting, compare and contrast the coral pink tissue of the attached gingiva with the darker, shiny tissue of the alveolar mucosa.
1-7 In the clinical setting, use compressed air to detect the presence or absence of stippling of the attached gingiva.
1-8 Identify the alveolar process (alveolar bone) on a human skull.
1-9 Describe the shape and contour of the alveolar crest of the bone in health.
1-10 Describe the nerve and blood supply to the periodontium.
1-11 Explain the role of the lymphatic system in the health of the periodontium.

MICROSCOPIC ANATOMY OF THE PERIODONTIUM

2-1 Describe the histology of the tissues and the function that each serves in the human body.
2-2 List and define the layers that comprise the stratified squamous epithelium of the skin.
2-3 Define keratin and describe its function in the epithelium.
2-4 Describe the composition and function of the connective tissue.
2-5 Describe the epithelium–connective tissue interface found in most tissues of the body, such as the interface between the epithelium and connective tissues of the skin.
2-6 Define the term *cell junction* and describe its function in the epithelial tissues.
2-7 Compare and contrast the terms *desmosome* and *hemidesmosome.*
2-8 Identify the three anatomical areas of the gingival epithelium on an unlabeled drawing depicting the microscopic anatomy of the gingival epithelium.
2-9 Describe the location and function of the following regions of the gingival epithelium: oral epithelium, sulcular epithelium, and junctional epithelium.
2-10 State the level of keratinization present in each of the three anatomical areas of the gingival epithelium (keratinized, nonkeratinized, or parakeratinized).
2-11 State which of the anatomical areas of the gingival epithelium have an uneven, wavy epithelium–connective tissue interface in health and which have a smooth junction in health.
2-12 Identify the enamel, gingival connective tissue, junctional epithelium, internal basal lamina, external basal lamina, epithelial cells, desmosomes, and hemidesmosomes on an unlabeled drawing depicting the microscopic anatomy of the junctional epithelium and surrounding tissues.
2-13 Compare and contrast the function of the supragingival fiber bundles and the periodontal ligament in the periodontium.
2-14 Identify the fiber groups of the periodontal ligament on an unlabeled drawing.
2-15 Define the terms *cementum* and *Sharpey's fibers* and describe their function in the periodontium.
2-16 State the three relationships that the cementum may have in relation to the enamel at the cementoenamel junction.
2-17 Define the term alveolar bone and describe its function in the periodontium.

OVERVIEW OF DISEASES OF THE PERIODONTIUM

3-1 Define the term *disease progression.*

3-2 Define the term *periodontal disease* and contrast it with the term *periodontitis.*

3-3 Compare and contrast the (1) position of the junctional epithelium; (2) characteristics of the epithelial–connective tissue junction; and (3) position of the crest of the alveolar bone in health, gingivitis, and periodontitis.

3-4 Explain why there is a band of intact transseptal fibers even in the presence of severe bone loss.

3-5 Describe the progressive destruction of alveolar bone loss that occurs in periodontitis.

3-6 Describe the pathway of inflammation that occurs in horizontal bone loss and contrast it with the pathway of inflammation that occurs in vertical bone loss.

3-7 Compare and contrast the characteristics of gingival and periodontal pockets.

3-8 For patients in the clinical setting, identify visible clinical signs of health and periodontal disease for your clinic instructor.

3-9 For a patient with periodontal disease, measure the probing depth of the sulci or pockets on the facial aspect of one sextant of the mouth. Using the information gathered visually and with the periodontal probe, explain whether this patient's disease is gingivitis or periodontitis.

3-10 Given a drawing of a periodontal pocket, determine whether the pocket illustrated is a suprabony or infrabony pocket.

3-11 Describe variables associated with periodontal disease that an epidemiologist might include in a research study.

3-12 Define prevalence and incidence as measurements of disease within a population.

3-13 Describe how clinical dental hygiene practice can be affected by epidemiologic research.

CLASSIFICATION OF PERIODONTAL AND PERI-IMPLANT DISEASES AND CONDITIONS

4-1 Explain the rationale for a classification system for periodontal disease.

4-2 List the three major categories of periodontal diseases and conditions.

4-3 Explain why clinicians need to be familiar with terminology from the 1999 disease classification, such as *chronic periodontitis* and *aggressive periodontitis.*

4-4 Compare and contrast the 2017 and the 1999 Classification Systems.

4-5 List the four subcategories which fall under the Peri-Implant Diseases and Conditions category.

PERIODONTAL HEALTH AND GINGIVAL DISEASES/ CONDITIONS

5-1 Define periodontal health and be able to describe the clinical features that are consistent with signs of periodontal health.

5-2 List the two major subdivisions of gingival disease as established by the American Academy of Periodontology and the European Federation of Periodontology.

5-3 Compare and contrast the etiologic factors associated with dental biofilm-induced gingivitis and non–biofilm-induced gingival diseases.

5-4 List the conditions that are classified under the non–plaque-induced gingival diseases category.

5-5 Describe the differences between an intact periodontium and a reduced periodontium.

5-6 Differentiate papillary gingivitis, marginal gingivitis, and diffuse gingivitis.

5-7 Describe the clinical signs which are characteristic of dental biofilm-induced gingivitis.

5-8 Describe how systemic factors can modify the host response to plaque biofilm and lead to gingival inflammation.

PERIODONTITIS

6-1 Describe the clinical signs and symptoms that are pathognomonic (def: specifically characteristic or indicative of a disease) of periodontitis.

6-2 Define the term *clinical attachment loss* and explain its significance in staging and grading periodontitis.

6-3 In the clinical setting, be able to explain to your patient the warning signs of periodontal disease and why these signs should not be ignored.

6-4 Describe the radiographic hallmarks of periodontitis.
6-6 Explain how disease severity and complexity of management play a role in determining the staging of periodontitis.
6-7 Explain the differences in criteria of direct evidence of disease progression versus indirect evidence of disease progression and be able to describe the roles each plays in periodontitis grading.
6-8 Define the meaning of the descriptors *recurrent* and *refractory* as they pertain to periodontitis.

MUCOGINGIVAL DEFORMITIES AND CONDITIONS AROUND TEETH

7-1 Define the terms mucogingival, normal mucogingival condition, and mucogingival deformity and condition.
7-2 Explain the significance of periodontal biotype and be able to describe the distinguishing features of thin-scalloped biotype, thick-scalloped biotype, and thick-flat biotype.
7-3 Define the term gingival recession and explain what factors you need to take into consideration to determine if treatment is indicated.
7-4 Explain the Miller and Cairo classification systems used to classify gingival recession.

PERI-IMPLANT HEALTH AND DISEASES

8-1 Describe the components of a conventional dental implant and restoration.
8-2 Compare and contrast the periodontium of a natural tooth versus the peri-implant tissues that surround a dental implant.
8-3 Define the terms *peri-implant health*, *peri-implant mucositis*, and *peri-implantitis* and distinguish the key differences among them.
8-4 Define the terms *osseointegration*, *biomechanical forces, and biomechanical overload* as they apply to dental implants.
8-5 Describe an appropriate maintenance interval for a patient with dental implants.
8-6 In the clinical setting, select appropriate self-care aids for a patient with dental implants.

ACUTE PERIODONTAL DISEASES

9-1 Define the term *acute periodontal disease* and list the conditions that fall under this category.
9-2 Describe the general characteristics of each of the acute periodontal diseases discussed in this chapter.
9-3 Name and describe the three types of abscesses of the periodontium.
9-4 List the possible causes of abscesses of the periodontium.
9-5 Compare and contrast the periodontal and pulpal abscesses.
9-6 Outline the typical treatment steps for a gingival abscess, periodontal abscess, and a pericoronal abscess.
9-7 Describe the possible outcomes of an untreated pericoronal abscess.
9-8 Describe the pathogenesis of an endodontic-periodontal lesion.
9-9 List the different categories of endodontic-periodontal lesions based on the signs and symptoms.
9-10 Describe the characteristics of necrotizing gingivitis, necrotizing periodontitis, and necrotizing stomatitis.
9-11 Outline the typical treatment steps for necrotizing gingivitis.
9-12 Compare and contrast the tissue destruction that occurs in necrotizing gingivitis and necrotizing periodontitis.
9-13 Describe the symptoms of primary herpetic gingivostomatitis.
9-14 List a step-by-step treatment plan to address a patient suffering from herpetic gingivostomatitis.

RISK FACTORS FOR PERIODONTAL DISEASE

10-1 Define risk factor and provide various examples of risk factors.
10-2 Define etiologic factor and distinguish etiologic factors from risk factors.
10-3 Define the term biologic equilibrium and explain how certain factors can disrupt the balance between health and disease.
10-4 Explain the differences between modifiable and nonmodifiable risk factors.
10-5 Describe the significance of performing a thorough periodontal risk assessment for each patient in a clinical setting.
10-6 In a clinical setting—for a patient in your care with periodontitis—explain to your clinical instructor the factors that

may have contributed to your patient's disease.

ORAL BIOFILMS

11-1 Describe the key structural features of gram-positive and gram-negative bacteria and explain the role of the cell envelope in the gram-staining technique.
11-2 Define the term biofilm and explain the advantages to a bacterium of living in a biofilm.
11-3 Describe the life cycle of a biofilm.
11-4 Explain the significance of the extracellular protective matrix and fluid channels to a biofilm.
11-5 Define coaggregation and explain its significance in bacterial colonization of the tooth surface.
11-6 Define quorum sensing and explain its significance in coordinating and regulating microbial behavior and growth.
11-7 Explain why systemic antibiotics and antimicrobial agents are not effective in eliminating dental plaque biofilms.
11-8 List several reasons why newer microbe detection methods have brought Socransky's microbial complexes model and the specific plaque hypothesis into question.
11-9 Discuss the evolution of hypotheses to explain the role of bacteria in periodontal disease and how current hypotheses are distinct from the nonspecific plaque hypothesis and the specific plaque hypothesis.
11-10 Discuss the hypothesis that plaque biofilm is necessary but not sufficient to cause destruction of the tissues of the periodontium and the implications for the treatment of individuals with periodontitis.

BASIC CONCEPTS OF IMMUNITY AND INFLAMMATION

12-1 Describe the function of the immune system.
12-2 Compare and contrast innate immunity and adaptive immunity.
12-3 Describe the role of polymorphonuclear leukocytes, macrophages, B-lymphocytes, plasma cells, T-lymphocytes, and NK (natural killer)-lymphocytes in the immune system.
12-4 Compare and contrast a macrophage and a monocyte.
12-5 List the five classes of antibodies (immunoglobulins) and describe the functions of each antibody class.
12-6 Describe the three ways that antibodies participate in the host defense.
12-7 Describe the complement system and explain the role it plays in the immune response.
12-8 Describe the steps in the process of phagocytosis.
12-9 Give an example of a type of injury or infection that would result in inflammation in an individual's arm. Describe and contrast the symptoms of inflammation that the individual would experience due to acute inflammation versus chronic inflammation.
12-10 Define *inflammatory mediator* and provide several examples of inflammatory mediators of importance in periodontitis.

HOST IMMUNOINFLAMMATORY RESPONSE TO DENTAL BIOFILM

13-1 Define the term host response and describe its primary function.
13-2 Describe the role the host immunoinflammatory response plays in the pathogenesis of periodontal disease.
13-3 Define the term biochemical mediator and list three of these mediators.
13-4 Describe the role of cytokines in the pathogenesis of periodontitis.
13-5 Describe the role of prostaglandins in the pathogenesis of periodontitis.
13-6 Describe the effect of matrix metalloproteinases (MMPs) on periodontal tissues.
13-7 Explain the phases of the bone remodeling cycle.
13-8 Explain the significance of a balanced OPG-to-RANKL ratio.
13-9 Describe the link between periodontitis and RANKL-mediated bone resorption.
13-10 For each of the histologic stages of gingivitis and periodontitis listed below name one change in the host immune response likely to be encountered:

- Bacterial accumulation phase
- Early gingivitis phase

- Established gingivitis phase
- Periodontitis phase

IMPACT OF SYSTEMIC CONDITIONS ON PERIODONTAL HEALTH

14-1 Name several systemic diseases/conditions that may modify the host response to periodontal pathogens.
14-2 Engage other health professionals—appropriate to the specific care situation—in shared patient-centered problem-solving.
14-3 Place the interests of patients at the center of interprofessional health care delivery.
14-4 Recognize the importance of educating patients about the relationship between oral health and systemic diseases, states, or conditions (such as the link between diabetes mellitus and periodontitis).
14-5 Discuss the potential implications of these systemic diseases on the periodontium:
uncontrolled diabetes, leukemia, and acquired immunodeficiency syndrome (AIDS).
14-6 Describe the significance of the AGE–RAGE interactions and its role in amplifying periodontal inflammation.
14-7 Discuss how hormone alterations may affect the periodontium.
14-8 Define the term osteoporosis and discuss the link between skeletal osteoporosis and alveolar bone loss in the jaw
14-9 Discuss the implications of Down syndrome on the periodontium.
14-10 Name three medications that can cause gingival enlargement.
14-11 For a patient in your care with periodontitis that is amplified by a systemic condition, explain to your clinical instructor the risk factors that may have contributed to the severity of your patient's periodontal disease.

IMPACT OF PERIODONTAL INFLAMMATION ON SYSTEMIC HEALTH

15-1 Contrast the terms *association* and *causation* between a given factor (A) and a systemic disease (B).
15-2 Educate patients at risk for cardiovascular diseases about the possible impact of periodontal infection on cardiovascular health and be able to motivate the patient to seek oral disease prevention/counseling services.
15-3 Educate pregnant women and those planning pregnancies about the possible impact of periodontal infection on pregnancy outcomes and be able to motivate the patient to seek oral disease prevention/counseling service.
15-4 Educate patients with diabetes about the probable bidirectional association between periodontal disease and diabetes and be able to motivate the patient to seek oral disease prevention/counseling service.
15-5 Educate family members and caregivers about the association between periodontal disease and pneumonia in health-compromised individuals in hospitals and long-term care facilities.
15-6 Establish collaborative relationships with other health care providers to ensure the highest standard of care for periodontal patients with systemic diseases and conditions.

LOCAL FACTORS CONTRIBUTING TO PERIODONTAL DISEASE

16-1 Describe how local factors contribute to the retention and accumulation of plaque biofilm.
16-2 Explain how a local contributing factor differs from a systemic contributing factor.
16-3 Identify and describe the location, composition, modes of attachment, mechanisms of mineralization, and pathologic potential of supra- and subgingival calculus deposits.
16-4 Discuss how local contributing factors can lead to direct damage to the periodontium.
16-5 Explain the role of trauma from occlusion as a possible contributing factor in periodontal disease.

TOBACCO, SMOKING, AND PERIODONTAL DISEASE

17-1 Discuss the implications of smoking/the use of tobacco products on periodontal health status.
17-2 Describe the different categories of tobacco/nicotine delivery systems and provide examples of each.
17-3 Discuss the implications of smoking on the host response to periodontal disease.
17-4 Discuss the implications of cannabis on the host response to periodontal disease.
17-5 Discuss the effects of smoking on periodontal treatment outcomes.
17-6 Discuss current theories as to why smokers have more periodontal disease than nonsmokers.
17-7 Explain why tobacco cessation counseling is a valuable part of patient care in the dental setting.

17-8 Value the importance of providing smoking cessation counseling as a routine part of periodontal treatment.

NUTRITION, INFLAMMATION, AND PERIODONTAL DISEASE

18-1 Discuss the link between obesity and periodontal disease.
18-2 Discuss the role of polymorphonuclear leukocytes in the production of reactive oxygen species in response to plaque biofilm.
18-3 Discuss how antioxidants may influence periodontal disease onset and progression.
18-4 Describe the proposed roles of micronutrients and macronutrients in periodontal disease.
18-5 List some oral symptoms associated with ascorbic acid deficiency gingivitis.
18-6 Explain the role of dental health care providers in addressing obesity and nutrition in the management of periodontal disease.

CLINICAL PERIODONTAL ASSESSMENT

19-1 List the components of a comprehensive periodontal assessment.
19-2 Describe how to evaluate each component of a comprehensive periodontal assessment.
19-3 Be able to calculate the width of attached gingiva.
19-4 Be able to calculate clinical attachment level given several different clinical scenarios.
19-5 Compare and contrast a periodontal screening examination and a comprehensive periodontal assessment.
19-6 Given a clinical scenario, calculate and document the clinical attachment levels for a patient with periodontitis.

RADIOGRAPHIC ANALYSIS OF THE PERIODONTIUM

20-1 Describe dental radiographic characteristics of the healthy periodontium.
20-2 Describe early dental radiographic evidence of periodontal disease.
20-3 Name some techniques that can be employed with periodontal patients to obtain high-quality dental radiographs.
20-4 Explain the basic principles of the vertical bitewing technique.
20-5 Describe the limitations of dental radiographs that all clinicians should keep in mind when viewing radiographs.
20-6 Explain the difference between vertical and horizontal alveolar bone loss as seen in dental radiographs.
20-7 Given a selection sample dental radiographs, apply the information from this chapter when analyzing those radiographs.

CLINICAL DECISION-MAKING FOR PERIODONTAL CARE

21-1 List the three fundamental diagnostic questions used when assigning a periodontal diagnosis.
21-2 List the two fundamental diagnostic questions used when assigning a peri-implant diagnosis.
21-3 Explain how to arrive at appropriate answers to each of the fundamental diagnostic questions.
21-4 Explain the difference between the signs of a disease versus the symptoms of a disease.
21-5 List several overt and hidden signs of periodontal inflammation.
21-6 Define the term silent disease.
21-7 Describe what is meant by the term clinical attachment loss.
21-8 Describe the elements of a well-written diagnosis for periodontitis.
21-9 List the phases of treatment.
21-10 Explain why a patient's diagnosis and treatment plan may require modifications at a later point in time.

BEST PRACTICES FOR PERIODONTAL CARE

24-1 Summarize how the explosion of knowledge is impacting practitioners and patients.
24-2 Identify the three components of evidence-based decision-making.
24-3 Discuss the benefits and limitations of experience.
24-4 Describe the role of the patient in the evidence-based model.
24-5 List locations for accessing systematic reviews.
24-6 Explain the difference between a peer-reviewed journal and trade magazine.

24-7 State three desired outcomes from attending continuing education courses.
24-8 Formulate a question using the PICO process.

NONSURGICAL PERIODONTAL THERAPY

25-1 Define the term and list four goals of nonsurgical periodontal therapy.
25-2 Explain the role of interdisciplinary collaborative care in nonsurgical periodontal therapy.
25-3 Write a typical treatment plan for nonsurgical therapy for (1) a patient with dental biofilm-induced gingivitis and (2) a patient with generalized stage I, grade A periodontitis.
25-4 Describe the type of healing to be expected following instrumentation of root surfaces.
25-5 Explain strategies for managing dentinal hypersensitivity.
25-6 Explain why reevaluation is an important step during nonsurgical therapy.
25-7 List steps a clinician should perform at the periodontal reevaluation appointment.
25-8 Discus the rationale and indications for referring a patient to a periodontist.

PATIENT'S ROLE IN NONSURGICAL PERIODONTAL THERAPY

26-1 In a classroom or laboratory setting, explain how to select and demonstrate the use of the following to an instructor: manual toothbrush, power toothbrush, and various interdental aids.
26-2 Explain why interdental care is of utmost importance for any patient.
26-3 In a clinical setting, recommend, explain, and demonstrate appropriate interdental aids to a patient with Type III embrasure spaces. Assist the patient in selecting an appropriate interdental aid that the patient is willing to use on a daily basis.
26-4 Explain how the presence of exposed root concavities in a dentition would influence your selection of effective self-care aids.
26-5 State the rationale for tongue cleaning and in the clinical setting, recommend and teach tongue cleaning to an appropriate patient.

SUPRAGINGIVAL AND SUBGINGIVAL IRRIGATION

27-1 Discuss the oral health benefits of a power-driven irrigation device for the patient with periodontal disease.
27-2 Distinguish the depth of the delivery between the power-driven water irrigation device and a power-driven air floss device, a toothbrush, dental floss, and other interdental aids.
27-3 Name the types of agents that can be used in a power-driven water irrigation device.
27-4 In a clinical setting, be able to educate a patient on how to use a power-driven water irrigation device.
27-5 Summarize research findings that relate to using professional irrigation to deliver chemicals to periodontal pockets.

CHEMOTHERAPEUTICS IN PERIODONTAL CARE

28-1 Define chemotherapy and explain its use in the treatment and management of periodontal disease.
28-2 Describe the difference between systemic delivery and topical delivery of chemical agents
28-3 Define the term systemic antibiotics and explain why they are not used routinely in the treatment of patients with plaque-induced gingivitis and patients with periodontitis.
28-4 Describe three examples of mouth rinse ingredients that can help reduce the severity of gingivitis.
28-5 List three antimicrobial agents that can be delivered with controlled-release delivery devices.
28-6 Explain why toothpastes are nearly ideal delivery mechanisms for chemical agents.
28-7 List two toothpaste ingredients that can reduce the severity of gingivitis.
28-8 Explain the current scientific evidence behind charcoal-based dental products and oil pulling.

HOST MODULATION THERAPY

29-1 Define the term host modulation therapy.
29-2 Discuss the potential importance of host modulation therapy.
29-3 Name some anti-inflammatory mediators.

29-4 Name some proinflammatory mediators.
29-5 List three types of drugs that have been studied for use as possible host modulating agents.
29-6 Explain why subantimicrobial dose doxycyclines are useful as host modulating agents.
29-7 Explain the term subantibacterial dose.
29-8 Make a list of treatment strategies for a periodontitis patient that includes host modulation.

PERIODONTAL SURGICAL CONCEPTS FOR THE DENTAL HYGIENIST

30-1 List objectives for periodontal surgery.
30-2 Be able to distinguish the terms relative contraindications and absolute contraindications for periodontal surgery.
30-3 Define the terms repair, reattachment, new attachment, and regeneration.
30-4 Explain the difference between healing by primary intention and healing by secondary intention.
30-5 Explain the rationale, indications, and advantages of elevating a periodontal flap.
30-6 Explain two methods for classifying periodontal flaps.
30-7 Describe two types of incisions used during periodontal flaps.
30-8 Describe healing following flap for access and open flap debridement.
30-9 Describe the typical outcomes for apically positioned flap with osseous surgery.
30-10 Define the terms ostectomy and osteoplasty.
30-11 Define the terms osteogenesis, osteoinductive, and osteoconductive.
30-12 Explain the terms autograft, allograft, xenograft, and alloplast.
30-13 Name two types of materials available for bone replacement grafts.
30-14 Explain why a barrier material is used during guided tissue regeneration.
30-15 Explain the term periodontal plastic surgery.
30-16 List two types of crown lengthening surgeries.
30-17 List some disadvantages of gingivectomy.
30-18 Explain what is meant by biological enhancement of periodontal surgical outcomes.
30-19 Name two broad categories of materials used for suturing periodontal wounds.
30-20 Describe what an interrupted interdental suture is.
30-21 List general guidelines for suture removal.
30-22 Describe the technique for periodontal dressing placement.
30-23 List general guidelines for periodontal dressing management.
30-24 Explain the important topics that should be covered in postsurgical instructions.
30-25 List steps in a typical postsurgical visit.

MAINTENANCE FOR THE PERIODONTAL PATIENT

31-1 List three objectives of periodontal maintenance.
31-2 Describe how periodontal maintenance relates to other phases of periodontal treatment.
31-3 List the typical steps performed during an appointment for periodontal maintenance.
31-4 Explain the term baseline data.
31-5 Describe guidelines for determining whether the general practice office or the periodontal office should provide periodontal maintenance.
31-6 Describe how to establish an appropriate interval between maintenance appointments.
31-7 Define the term periodontal disease recurrence.
31-8 List clinical signs of periodontal disease recurrence.
31-9 List reasons for periodontal disease recurrence.
31-10 Define the term compliance.
31-11 Explain the role compliance plays in maintaining periodontal health and stability.
31-12 List reasons for noncompliance with periodontal maintenance recommendations.
31-13 Explain some strategies that can be used to improve patient compliance.

31-14 Define the term root caries and list recommendations for use of fluorides in the prevention of root caries.
31-15 Describe the various types of assessment tools an oral health care practitioner can use to evaluate a patient's risk of developing caries.

FUTURE DIRECTIONS FOR MANAGEMENT OF PERIODONTAL PATIENTS

33-1 Describe some strategies in the management of patients with periodontal diseases that are likely to evolve in the future.