DHYG 1070 Radiology Lecture
COURSE SYLLABUS
Spring Semester 2020

COURSE INFORMATION

Credit Hours/Minutes: 2 semester credit hours and 1500 contact minutes
Campus/Class Location: Vidalia campus, Health Sciences Annex C, Room 906
Class Meets: Monday 8:00-10:50 and Thursday 8:00-9:00 (January 7-February 27)
Course Reference Number (CRN): 40195

INSTRUCTOR CONTACT INFORMATION

Course Director: Jennifer M. Gramiak, RDH, EdD
Campus/Office Location: Vidalia campus, Health Sciences Annex C, Office 908
Office Hours: Monday 1:00-4:00, Tuesday 1:00-4:00, and Wednesday 8:00-12:00
Email Address: Jennifer Gramiak jgramiak@southeasterntech.edu
Phone: 912-538-3210
Fax Number: 912-538-3278

SOUTHEASTERN TECHNICAL COLLEGE'S (STC) CATALOG AND STUDENT HANDBOOK

Students are responsible for all policies and procedures and all other information included in Southeastern Technical College's Catalog and Handbook (http://www.southeasterntech.edu/student-affairs/catalog-handbook.php).

REQUIRED TEXT

Essentials of Dental Radiography for Dental Assistants and Hygienists. Tenth edition. Pearson.
STC Dental Hygiene Clinic Manual and Handbook. 2019.
Center for Disease Control (CDC) Guidelines: From Policy to Practice. Organization for Safety, Asepsis, and Prevention (OSAP).

REQUIRED SUPPLIES

Black pen, pencil, paper, notebook, highlighter, removable drive, clinical supplies, radiology sensor holder, Spring Supply Kit from Simply Hygiene, and biteblocks for digital radiographs.

Students should not share login credentials with others and should change passwords periodically for security.

COURSE DESCRIPTION

This course emphasizes the application of radiology principles in the study of the teeth and their surrounding structures. Topics include: radiation physics principles, radiation biology, radiation safety, radiographic quality assurance, imaging theory, radiographic interpretation, radiographic need, legal issues of dental radiography, and digital radiography techniques and principles

MAJOR COURSE COMPETENCIES (CC)

1. Radiation physics principles
2. Radiation biology
3. Radiation safety
4. Radiographic quality assurance
5. Imaging theory
6. Radiographic interpretation
7. Radiographic need
8. Legal issues of dental radiography
9. Digital radiography principles and techniques

PREREQUISITES

Program Admission and DHYG 1020 Head and Neck Anatomy

GENERAL EDUCATION CORE COMPETENCIES (GC)

Southeastern Technical College has identified the following general education core competencies that graduates will attain:

a. The ability to utilize standard written English.
b. The ability to solve practical mathematical problems.
c. The ability to read, analyze, and interpret information.

STUDENT REQUIREMENTS

Students are responsible for the policies and procedures in the STC catalog and handbook on the STC website, Dental Hygiene Program Handbook, and Dental Hygiene Clinic Manual. During an examination, the following procedures must be followed: All books and personal belongings must be placed at the back of the classroom. Students will be asked to rotate seats prior to the beginning of the test. Test proctor will personally examine each desk to ensure that no writing is present on desk. Computer monitors should be facing the front of the classroom during test. When a student completes the test, he/she may raise hand and turn paper in to proctor. Student must remain in seat until test time is complete to avoid distracting other students. Students who have completed testing should be as quiet as possible and avoid any activity that might make those students who are still testing feel pressured or rushed. Students may not go to the bathroom during the test session. Test proctor must observe students at all times and notify students when there are ten remaining minutes left of the total exam time. Test proctor should routinely walk around classroom and observe testing. Test proctor should refrain from grading papers, reading materials, or using computer during the test. Students caught with cheat sheets or cell phones will be considered cheating and a "0" will be issued for the examination. The STC academic dishonesty policy will be enforced. Once the test begins, no talking is allowed. Once the test begins, tardy students may not enter the classroom.

Students are expected to exhibit professional behavior at all times. Each student must show respect and concern for fellow students and for the course instructors/supervising dentists. Insubordination will not be tolerated, and disciplinary measures will be enacted. No cell phones or smart electronic devices are allowed to be turned on in the classroom, clinic, or locker area. If a student is observed in possession of his/her cell phone or smart electronic device during class, a critical incident will be issued. A student cannot use his/her cell phone or smart electronic device during class. There are no exceptions to this rule and do not ask. If you have a personal situation going on, please advise your instructor and give your family the clinic receptionist's phone number for emergency contact. You should not have your cell phone or smart electronic device in the class! Personal phone calls must be handled after class.

By completing the assignments below prior to class, students will become familiar with course material prior to classroom facilitation. As a result, higher-level learning will be fostered in the classroom.

1. Read and study the assigned chapter(s).
2. Learn the key terms at the beginning of the chapter(s).
3. Complete the objectives at the front of the chapter(s).
4. Complete the recall, reflect, and relate exercises at the end of each chapter.
5. Utilize the online textbook resources provided by the publisher.
6. Check your emails regularly.

ATTENDANCE GUIDELINES

Class attendance is a very important aspect of a student's success. Being absent from class prevents students from receiving the full benefit of a course and interrupts the learning process. Southeastern Technical College considers both tardiness and leaving early as types of absenteeism. Responsibility for class attendance rests with the student. Regular and punctual attendance at all scheduled classes is required for student success. Students will be expected to complete all work required by the instructor as described in the individual course syllabus. Students who stop attending class, but do not formally withdraw, may receive a grade of "F" (Failing 0-59) and face financial aid repercussions in upcoming semesters. Instructors are responsible for determining whether missed work may be made up and the content and dates for makeup work is at the discretion of the instructor. Excused absences will be evaluated on a case-by-case basis by the program director. Examples of excused absences would be a car accident on the way to class/clinic or unexpected hospitalization of the student. Please do not plan a vacation or schedule a routine medical/dental appointment during the designated class/clinical times. Unexcused absences will not be made up and may lead to the student's failure of the course. Program director must be notified of any absences prior to scheduled clinic/class session.

Attendance is counted from the first scheduled class meeting of each semester. To receive credit for a course, a student must attend at least 90% of the scheduled instructional time. Assignments missed due to tardiness or absences must be made up at the convenience of the instructor. Any student attending less than the required scheduled instructional time (90%) may be dropped from the course as stated below in the Withdrawal Procedure. Tardy means arriving after the scheduled time for instruction to begin. Early departure means leaving before the end of the scheduled time. Three (3) tardies or early departures equal one (1) absence for the course.

For this class, which meets 2 sessions per week for 8 weeks, the maximum number of sessions a student may miss for attendance purposes is 2 sessions during the semester.

ADDITIONAL ATTENDANCE GUIDELINES FOR HEALTH SCIENCES

Requirements for instructional hours within Health Science programs reflect the rules of respective licensure boards and/or accrediting agencies. Therefore, these programs have stringent attendance policies. Each program's attendance policy is published in the program's handbook and/or syllabus which specify the number of allowable absences. All provisions for required make-up work in the classroom or clinical experiences are at the discretion of the instructor.

SPECIFIC ABSENCES

Provisions for Instructional Time missed because of documented absences due to jury duty, military duty, court duty, or required job training will be made at the discretion of the instructor.

WITHDRAWAL PROCEDURE

Students wishing to officially withdraw from a course(s) or all courses after the drop/add period and prior to the 65% point of the term in which student is enrolled (date will be posted on the school calendar) must speak with a Career Counselor in Student Affairs and complete a Student Withdrawal Form. When the student completes the withdrawal form, a grade of "W" (Withdrawn) is assigned for the course(s).

Withdrawal Due to Attendance Violation- Students who are withdrawn from a course(s) due to attendance violation after drop/add and until the 65% point of the semester will receive a grade of "W" for the course(s).

Informing your instructor that you will not return to his/her course does not satisfy the approved withdrawal procedure outlined above.

Important – Student-initiated withdrawals from a course(s) are not allowed after the 65% point. After the 65% point, only instructors can withdraw students from a course(s).

Students who are withdrawn from a course(s) due to attendance violation after the 65% point will receive a grade of "WP" (Withdrawal Passing-average of 60 or higher) or a grade of "WF" (Withdrawal Failing-average of 59 or lower). Students will receive a grade of **zero** for all assignments missed beginning with the Last Date of Attendance (LDA) and the date the student exceeds the attendance procedure.

Withdrawal Due to Academic Deficiency- Students who are withdrawn from a course(s) due to academic deficiency will receive a grade of "W" for the course(s). If a student cannot progress in the dental hygiene program due to academic deficiency, the student will receive a grade of "W" for all DHYG (dental hygiene) courses for the semester and will be unable to progress in the dental hygiene program.

There is no refund for partial reduction of hours. Withdrawals may affect the students' eligibility for financial aid for the current semester and in the future. Students must also speak with a representative of the Financial Aid Office to determine any financial penalties that may be accessed due to the withdrawal(s). A grade of "W" will count in attempted hour calculations for the purpose of Financial Aid.

MAKEUP GUIDELINES

Students are allowed to make up only one missed exam excluding the final examination. This is only if they have an excused absence approved by the instructor. The makeup exam may be given in a different format than the original exam. A doctor's excuse and/or additional documentation will be requested. Ten points will be deducted from the test for taking the test late. All other missed exams/quizzes/class preparation assessments will result in a grade of "0". If you enter the classroom late, you will not be allowed to take the exam, and you will be issued a grade of "0" for the exam. PLEASE be on time! Failure to complete homework assignments will result in one point being deducted from the final course grade for each assignment not completed by the deadline specified. Late or incomplete assignments will still need to be completed and turned in for instructor review and feedback. If you are going to be absent, you should deliver your assignment to your instructor prior to the deadline to ensure credit.

STUDENTS WITH DISABILITIES

Students with disabilities who believe that they may need accommodations in this class based on the impact of a disability are encouraged to contact the appropriate campus coordinator to request services.
Swainsboro Campus: Macy Gay mgay@southeasterntech.edu, 478-289-2274, Building 1, Room 1210
Vidalia Campus: Helen Thomas hthomas@southeasterntech.edu, 912-538-3126, Building A, Room 165

PREGNANCY

Southeastern Technical College does not discriminate on the basis of pregnancy. However, we can offer accommodations to students who are pregnant that need special consideration to successfully complete the course. If you think you will need accommodations due to pregnancy, please make arrangements with the appropriate campus coordinator.

Swainsboro Campus: Macy Gay mgay@southeasterntech.edu, 478-289-2274, Building 1, Room 1210
Vidalia Campus: Helen Thomas hthomas@southeasterntech.edu, 912-538-3126, Building A, Room 165

It is strongly encouraged that requests for consideration be made **PRIOR** to delivery and early enough in the pregnancy to ensure that all the required documentation is secured before the absence occurs. Requests made after delivery **MAY NOT** be accommodated. The coordinator will contact your instructor to discuss accommodations when all required documentation has been received. The instructor will then discuss a plan with you to make up missed assignments.

ACADEMIC DISHONESTY POLICY

The Southeastern Technical College Academic Dishonesty Policy states that all forms of academic dishonesty, including but not limited to cheating on tests, plagiarism, collusion, and falsification of information, will call for discipline. The policy can also be found in the Southeastern Technical College Catalog and Student Handbook.

PROCEDURE FOR ACADEMIC MISCONDUCT

The procedure for dealing with academic misconduct and dishonesty is as follows:

1. First Offense
   Student will be assigned a grade of "0" for the test or assignment. Instructor keeps a record in course/program files and notes as first offense. The instructor will notify the student's program advisor, academic dean, and the Registrar at the student's home campus. The Registrar will input the incident into Banner for tracking purposes.
2. Second Offense
   Student is given a grade of "WF" (Withdrawn Failing) for the course in which offense occurs. The instructor will notify the student's program advisor, academic dean, and the Registrar at the student's home campus indicating a "WF" has been issued as a result of second offense. The Registrar will input the incident into Banner for tracking purposes.
3. Third Offense
   Student is given a grade of "WF" for the course in which the offense occurs. The instructor will notify the student's program advisor, academic dean, and the Registrar at the student's home campus indicating a "WF" has been issued as a result of third offense. The Vice President for Student Affairs, or designee, will notify the student of suspension from college for a specified period of time. The Registrar will input the incident into Banner for tracking purposes.

STATEMENT OF NON-DISCRIMINATION

The Technical College System of Georgia (TCSG) and its constituent Technical Colleges do not discriminate on the basis of race, color, creed, national or ethnic origin, gender, religion, disability, age, political affiliation or belief, genetic information, disabled veteran, veteran of the Vietnam Era, spouse of military member, or citizenship status (except in those special circumstances permitted or mandated by law). This nondiscrimination policy encompasses the operation of all technical college-administered programs, federally financed programs, educational programs and activities involving admissions, scholarships and loans, student

life, and athletics. It also applies to the recruitment and employment of personnel and contracting for goods and services.

All work and campus environments shall be free from unlawful forms of discrimination, harassment and retaliation as outlined under Title IX of the Educational Amendments of 1972, Title VI and Title VII of the Civil Rights Act of 1964, as amended, the Age Discrimination in Employment Act of 1967, as amended, Executive Order 11246, as amended, the Vietnam Era Veterans Readjustment Act of 1974, as amended, Section 504 of the Rehabilitation Act of 1973, as amended, the Americans With Disabilities Act of 1990, as amended, the Equal Pay Act, Lilly Ledbetter Fair Pay Act of 2009, the Georgia Fair Employment Act of 1978, as amended, the Immigration Reform and Control Act of 1986, the Genetic Information Nondiscrimination Act of 2008, the Workforce Investment Act of 1998 and other related mandates under TCSG Policy, federal or state statutes.

The Technical College System and Technical Colleges shall promote the realization of equal opportunity through a positive continuing program of specific practices designed to ensure the full realization of equal opportunity.

The following individuals have been designated to handle inquiries regarding the nondiscrimination policies:

American With Disabilities Act (ADA)/Section 504 - Equity- Title IX (Students) – Office of Civil Rights (OCR) Compliance Officer	**Title VI - Title IX (Employees) – Equal Employment Opportunity Commission (EEOC) Officer**
Helen Thomas, Special Needs Specialist Vidalia Campus 3001 East 1st Street, Vidalia Office 165 Phone: 912-538-3126 Email: Helen Thomas hthomas@southeasterntech.edu	Lanie Jonas, Director of Human Resources Vidalia Campus 3001 East 1st Street, Vidalia Office 138B Phone: 912-538-3230 Email: Lanie Jonas ljonas@southeasterntech.edu

ACCESSIBILITY STATEMENT

Southeastern Technical College is committed to making course content accessible to individuals to comply with the requirements of Section 508 of the Rehabilitation Act of Americans with Disabilities Act (ADA). If you find a problem that prevents access, please contact the course instructor.

GRIEVANCE PROCEDURES

Grievance procedures can be found in the Catalog and Handbook located on Southeastern Technical College's website.

ACCESS TO TECHNOLOGY

Students can now access Blackboard, Remote Lab Access, Student Email, Library Databases (Galileo), and BannerWeb via the mySTC portal or by clicking the Current Students link on the Southeastern Technical College (STC) Website (www.southeasterntech.edu).

TECHNICAL COLLEGE SYSTEM OF GEORGIA (TCSG) GUARANTEE/WARRANTY STATEMENT

The Technical College System of Georgia guarantees employers that graduates of State Technical Colleges shall possess skills and knowledge as prescribed by State Curriculum Standards. Should any graduate employee within two years of graduation be deemed lacking in said skills, that student shall be retrained in any State

Technical College at no charge for instructional costs to either the student or the employer.

INSTRUCTIONAL DELIVERY METHODS

The following methods may be utilized to facilitate learning: lecture, PowerPoint presentations with handouts, multimedia presentations to include CD-ROM with full-color clinical photos and case studies, group discussions, technological integration of curriculum utilizing textbook companion website, independent reading assignments, independent scientific periodical review, interactive websites, independent research, group collaboration, laboratory demonstrations, and examinations.

EVALUATION PROCEDURES

You must achieve a final course grade of "C" or higher to progress in the program. Seven examinations and seven class preparation assessments will be given. 100 points can be earned on each examination and each class preparation assessment. Assignments may also be given during class sessions. Failure to complete assignments will result in 1 point being deducted from the final course grade.

CLASS PREPARATION ASSESSMENT

A class preparation assessment will be conducted during designated class sessions as outlined on the lesson plan. Each student shall randomly draw one question. The question will cover some topic or portion of the course material that the student should have read and studied as outlined on the lesson plan. If a student demonstrates prior class preparation/participation by answering the question correctly, a session grade of 100 will be recorded. If a student fails to demonstrate prior class preparation/participation by answering the question incorrectly, a session grade of "0" will be recorded. The student will be allowed to remain in class, but shall be required to report to campus on Thursday of the same week from 9:00-11:00 and study the course material to ensure adequate time has been spent studying so that application of the course material may be achieved.

WORK ETHICS/EVERYDAY ETHICS ASSIGNMENT

One work ethics exercise will be completed and turned in by the date specified on the lesson plan. Assignments and directions are located in the DHYG 1070 folder on the Materials (M) Drive. Failure to complete assignment by established deadline will result in a deduction of 1 point from the final course grade.

GRADING SCALE

Letter Grade	Range
A	90-100
B	80-89
C	70-79
D	60-69
F	0-59

GRADING POLICY

Assessment/Assignment	Percentage
Examination 1 (Chapters 1-6)	10%
Examination 2 (Chapters 7-11)	10%
Examination 3 (Chapters 12-15)	10%
Examination 4 (Chapters 16-19)	10%
Examination 5 (Chapters 20-23)	10%
Examination 6 (Chapters 24-26)	10%

Assessment/Assignment	Percentage
Examination 7 (Chapters 1-31)	20%
Class Preparation Assessments (1-6 averaged together)	20%

CALCULATION OF FINAL COURSE GRADE

Evaluation Item	Grade	(X) %	Points
Examination 1		0.10	
Examination 2		0.10	
Examination 3		0.10	
Examination 4		0.10	
Examination 5		0.10	
Examination 6		0.10	
Examination 7		0.20	
Class Preparation Assessment 1			
Class Preparation Assessment 2			
Class Preparation Assessment 3			
Class Preparation Assessment 4			
Class Preparation Assessment 5			
Class Preparation Assessment 6			
Class Preparation Assessments (1-6 averaged together)		0.20	
-Point Deductions for late/incomplete assignments			
Subtotal			
Final Course Grade			

DENTAL HYGIENE PROGRAM GOALS

A. To provide comprehensive preparation of competent individuals in the arts and sciences pertinent to the discipline of dental hygiene.
B. To provide comprehensive preparation of competent individuals in the clinical and laboratory experiences, which are necessary to develop skills in rendering professional dental hygiene patient care to the public.
C. To provide an environment that will foster respect for the Dental Hygiene Professional Code of Ethics and Conduct and assure recognition and acceptance of the responsibilities of the profession of dental hygiene.
D. To prepare the graduates of the basic two-year curriculum in dental hygiene to fulfill the dental hygienist's role in community oral health services.
E. To teach students to conduct critical reviews of current literature as a means of research and life-long learning.
F. To teach students to seek life-long learning through continuing education courses on the latest products and developments in dentistry and medicine.

Instructional Objectives

After studying the assigned chapter, students will be able to complete the following tasks:

Chapter 1 Dental Radiography: Historical Perspective and Future Trends

1. Define the key terms. (A,C,D,F)
2. State when x-rays were discovered and by whom. (A,C,D,F)
3. Trace the history of radiography, noting the prominent contributors. (A,C,D,F)
4. List two historical developments that made dental x-ray machines safer. (A,C,D,F)
5. Explain how rectangular Position Indicating Device (PID) reduces patient radiation exposure. (A,C,D,F)
6. Identify the two techniques used to expose dental radiographs. (A,C,D,F)
7. List five uses of dental radiographs. (A,C,D,F)
8. Become aware of other imaging modalities available for use in the detection and evaluation of oral conditions. (A,C,D,F)

Chapter 2 Characteristics and Measurement of Radiation

1. Define the key terms. (A,C,D,F)
2. Draw and label a typical atom. (A,C,D,F)
3. Describe the process of ionization. (A,C,D,F)
4. Differentiate between radiation and radioactivity. (A,C,D,F)
5. List the properties shared by all energies of the electromagnetic spectrum. (A,C,D,F)
6. Explain the relationship between wavelength and frequency. (A,C,D,F)
7. List the properties of x-rays. (A,C,D,F)
8. Identify and describe the two processes by which kinetic energy is converted to electromagnetic energy within the dental x-ray tube. (A,C,D,F)
9. Differentiate between primary, secondary, and scatter radiations. (A,C,D,F)
10. List and describe the four possible interactions of dental x-rays with matter. (A,C,D,F)
11. Define the terms used to measure x-radiation. (A,C,D,F)
12. Match the *Systeme Internationale* (SI) units of x-radiation measurement to the corresponding traditional terms. (A,C,D,F)

13. Identify three sources of naturally occurring background radiation. (A,C,D,F)

Chapter 3 The Dental X-ray Machine: Components and Function

1. Define the key terms. (A,C,D,F)
2. Identify the three major components of a dental x-ray machine. (A,C,D,F)
3. Identify and explain the function of the five controls on the control panel. (A,C,D,F)
4. Differentiate between alternating and direct electrical currents. (A,C,D,F)
5. Explain the relationships between AC and DC dental x-ray machines and their effects on film and digital image receptors. (A,C,D,F)
6. State the three conditions necessary for the production of x-rays. (A,C,D,F)
7. Draw and label the parts of a dental x-ray tube. (A,C,D,F)
8. Trace the production of x-rays from the time the exposure button is activated until x-rays are released from the tube. (A,C,D,F)
9. Demonstrate, in sequence, steps in operating a dental x-ray machine. (A,C,D,F)

Chapter 4 Factors Affecting Radiographic Quality

1. Define the key terms. (A,C,D,F)
2. Evaluate a radiographic image identifying the basic requirements of acceptability. (A,C,D,F)
3. Differentiate between radiolucent and radiopaque areas on a dental radiograph. (A,C,D,F)
4. Define radiographic density and contrast. (A,C,D,F)
5. List the rules for casting a shadow image. (A,C,D,F)
6. List the variables that affect film contrast. (A,C,D,F)
7. Describe how geometric factors affect image sharpness. (A,C,D,F)
8. Identify the causes of image magnification and distortion. (A,C,D,F)
9. Explain the effect milliamperage, kilovoltage, and exposure time have on image density. (A,C,D,F)
10. Explain the effect variations in target-surface, objective-image receptor, and target-image receptor distances have on image quality. (A,C,D,F)
11. Demonstrate practical use of the inverse square law. (A,C,D,F)

Chapter 5 Effects of Radiation Exposure

1. Define the key terms. (A,C,D,F)
2. Differentiate between the direct and indirect theories of biological damage. (A,C,D,F)
3. Differentiate between a threshold dose-response curve and a nonthreshold dose-response curve. (A,C,D,F)
4. List the sequence of events that may follow exposure to radiation. (A,C,D,F)
5. Identify factors that determine whether radiation injuries are likely. (A,C,D,F)
6. List three conditions that influence the radiosensitivity of a cell. (A,C,D,F)
7. Determine the relative radiosensitivity or radioresistance of various kinds of cells in the body. (A,C,D,F)
8. Explain the difference between deterministic and stochastic effects. (A,C,D,F)
9. Explain the difference between somatic and genetic effects. (A,C,D,F)
10. Explain the difference between short- and long-term effects of irradiation. (A,C,D,F)
11. Identify critical issues for dental radiography. (A,C,D,F)
12. Discuss the risks versus benefits of dental radiographs. (A,C,D,F)
13. Utilize effective dose equivalent to make radiation exposure comparisons. (A,C,D,F)

Chapter 6 Radiation Protection

1. Define the key terms. (A,C,D,F)
2. Adopt the As Low As Reasonably Achievable (ALARA) concept. (A,C,D,F)
3. Use the selection criteria guidelines to explain the need for prescribed radiographs. (A,C,D,F)
4. Explain the roles communication, working knowledge of quality radiographs, and education play in preventing unnecessary radiation exposure. (A,C,D,F)
5. Explain the roles technique and exposure choices play in preventing unnecessary radiation exposure. (A,C,D,F)
6. Compare inherent, added, and total filtration. (A,C,D,F)
7. State the federally mandated limited diameter of the intraoral dental x-ray. (A,C,D,F)
8. List two functions of a collimator. (A,C,D,F)
9. Explain how PID shape and length contribute to reducing patient radiation exposure. (A,C,D,F)
10. Identify film speeds currently available for use in dental radiography. (A,C,D,F)
11. Explain the role image receptor holders play in reducing patient radiation exposure. (A,C,D,F)
12. Advocate the use of a lead/lead equivalent thyroid collar and apron. (A,C,D,F)
13. Explain the role darkroom protocol and film handling play in reducing patient radiation exposure. (A,C,D,F)
14. Summarize radiation protection methods for a patient. (A,C,D,F)
15. Explain the roles time, shielding, and distance play in protecting a radiographer from unnecessary radiation exposure. (A,C,D,F)
16. Utilize distance and location to take a position an appropriate distance and angle from the x-ray source during an exposure. (A,C,D,F)
17. Describe radiation safety protocol for use with portable, handheld x-ray devices. (A,C,D,F)
18. Describe radiation monitoring devices. (A,C,D,F)
19. Summarize radiation protection methods for a radiographer. (A,C,D,F)
20. List organizations responsible for recommending and setting exposure limits. (A,C,D,F)
21. State the maximum permissible dose (MPD) for radiation workers and for the general public. (A,C,D,F)

Chapter 7 Dental X-ray Film and Processing Methods

1. Define the key terms. (A,C,D,F)
2. List and describe the four parts of an intraoral film. (A,C,D,F)
3. Describe latent image formation and explain how it becomes a visible radiographic image. (A,C,D,F)
4. List and describe the four parts of an intraoral film packet. (A,C,D,F)
5. Identify the intraoral film speeds currently available for dental radiographs. (A,C,D,F)
6. Explain how duplicating film is different than radiographic film. (A,C,D,F)
7. List in sequence the steps in processing dental films. (A,C,D,F)
8. Identify and explain the role developer plays in processing a radiographic image. (A,C,D,F)
9. Identify and explain the role fixer plays in processing a radiographic image. (A,C,D,F)
10. List requirements for safelighting a darkroom. (A,C,D,F)
11. Identify equipment needed for manual film processing. (A,C,D,F)
12. Identify equipment needed for automatic film processing. (A,C,D,F)
13. Compare manual and automatic processing methods, stating advantages and disadvantages of each. (A,C,D,F)

14. Explain the role chemical replenishment and solution changes play in maintaining optimal processing chemistry. (A,C,D,F)
15. List conditions that will diminish the quality of stored dental x-ray film. (A,C,D,F)

Chapter 8 Digital Radiography and Image Acquisition

1. Define the key terms. (A,C,D,F)
2. Explain the fundamental concepts of digital radiography and image acquisition. (A,C,D,F)
3. Describe the characteristics of a digital image. (A,C,D,F)
4. List equipment needed to acquire a digital image. (A,C,D,F)
5. Explain the use of software in digital image interpretation. (A,C,D,F)
6. Differentiate between direct and indirect digital imaging. (A,C,D,F)
7. Describe the difference between narrow and wide dynamic range. (A,C,D,F)
8. Describe and compare three types of digital image receptors. (A,C,D,F)
9. Discuss digital imaging's effect on radiation dose to a patient. (A,C,D,F)
10. Identify benefits and limitations of digital radiographic imaging. (A,C,D,F)

Chapter 9 Infection Control

1. Define the key terms. (A,C,D,F)
2. List the conditions that make up the chain of infection. (A,C,D,F)
3. State the purpose of infection control. (A,C,D,F)
4. Identify methods of breaking the chain of infection. (A,C,D,F)
5. State the roles the Centers of Disease Control and Prevention (CDC) and the Occupational Safety and Health Administration (OSHA) play in providing guidelines for infection control. (A,C,D,F)
6. List personal protective equipment (PPE) recommended for dental radiographers. (A,C,D,F)
7. Explain how to maintain hand and respiratory hygiene. (A,C,D,F)
8. Compare the different levels of Environmental Protection Agency (EPA)-regulated disinfectants. (A,C,D,F)
9. Explain the role of surface barriers in infection control. (A,C,D,F)
10. Differentiate between semicritical and noncritical objects used during radiographic procedures. (A,C,D,F)
11. Demonstrate competency in following infection control protocol prior to, during, and after radiographic procedures. (A,C,D,F)
12. Demonstrate competency in following infection control protocol for handling and processing intraoral image receptors. (A,C,D,F)
13. Demonstrate competency in following infection control protocol when using an automatic processor with a daylight loader attachment. (A,C,D,F)

Chapter 10 Legal and Ethical Responsibilities

1. Define the key terms. (A,C,D,F)
2. Discuss federal and state regulations concerning the use of dental x-ray equipment. (A,C,D,F)
3. Describe licensure requirements for individuals who expose dental radiographs. (A,C,D,F)
4. Identify specific risk management strategies pertaining to dental radiography. (A,C,D,F)
5. Respond to a patient exercising self-determination in refusing a radiographic examination. (A,C,D,F)
6. List criteria for informed consent. (A,C,D,F)

7. List the details that must be documented in a patient's record regarding a radiographic examination. (A,C,D,F)
8. Describe elements required before releasing a copy of a patient's radiographic images. (A,C,D,F)
9. State how long radiographic images should be maintained and available. (A,C,D,F)
10. Describe the role of Digital Imaging and Communications in Medicine (DICOM). (A,C,D,F)
11. List the advantages of cloud sharing over other methods of storing and sharing digital radiographic images. (A,C,D,F)
12. Identify a cloud sharing system that is Health Insurance Portability and Accountability Act (HIPAA) compliant. (A,C,D,F)
13. Explain Joint Photographers' Expert Group (JPEG) impact on digital radiographic images. (A,C,D,F)
14. Identify the role professional ethics play in guiding a radiographer's behavior. (A,C,D,F)

Chapter 11 Patient Relations and Education

1. Define the key terms. (A,C,D,F)
2. Value the need for patient cooperation in producing quality radiographs. (A,C,D,F)
3. List aspects of patient relations that help to gain confidence and cooperation. (A,C,D,F)
4. Explain how professional appearance and first impression affect patient relations. (A,C,D,F)
5. Explain how to project an attitude of professionalism. (A,C,D,F)
6. State examples of facilitation skills. (A,C,D,F)
7. Explain the relationship between verbal and nonverbal communication. (A,C,D,F)
8. Demonstrate the patient management strategy Show-Tell-Do. (A,C,D,F)
9. Explain the goals of active listening. (A,C,D,F)
10. Explain the goals of patient education. (A,C,D,F)
11. Describe methods of patient education. A,C,D,F)
12. Respond to questions frequently asked regarding a radiographic examination. (A,C,D,F)

Chapter 12 Introduction to Radiographic Examinations

1. Define the key terms. (A,C,D,F)
2. State the difference between intraoral and extraoral radiography. (A,C,D,F)
3. Compare the three intraoral radiographic examinations. (A,C,D,F)
4. Identify the two intraoral techniques. (A,C,D,F)
5. List the five rules for shadow casting. (A,C,D,F)
6. Determine conditions that affect the selection of image receptor size. (A,C,D,F)
7. Select the type and number of image receptors required for a full mouth survey. (A,C,D,F)
8. Explain horizontal and vertical angulation. (A,C,D,F)
9. Explain point of entry. (A,C,D,F)
10. List five contraindications for using the patient's finger to hold the image receptor during exposure. (A,C,D,F)
11. Explain the basic design of image receptor positioners/ holders. (A,C,D,F)
12. Describe proper patient seating position. (A,C,D,F)
13. Demonstrate a systematic and orderly sequence of the exposure procedure. (A,C,D,F)

Chapter 13 The Periapical Examination- Paralleling Technique

1. Define the key terms. (A,C,D,F)

2. Discuss the principles of the paralleling technique. (A,C,D,F)
3. List the advantages and limitations of the paralleling technique. (A,C,D,F)
4. Identify, assemble, and position image receptor holders for use with the paralleling technique. (A,C,D,F)
5. Explain the importance of achieving accurate horizontal and vertical angulation in obtaining quality diagnostic radiographs using the paralleling technique. (A,C,D,F)
6. Identify vertical angulation errors unique to the paralleling technique. (A,C,D,F)
7. Demonstrate the image receptor positioning, horizontal and vertical angulation, and points of entry for maxillary and mandibular periapical exposures using the paralleling technique. (A,C,D,F)

Chapter 14 The Periapical Examination- Bisecting Technique

1. Define the key terms. (A,C,D,F)
2. Discuss the principles of the bisecting technique. (A,C,D,F)
3. List the advantages and limitations of the bisecting technique. (A,C,D,F)
4. Identify, assemble, and position image receptor holders for use with the bisecting technique and distinguish these holders from those used with paralleling technique. (A,C,D,F)
5. Explain the importance of achieving accurate horizontal and vertical angulation in obtaining quality diagnostic radiographs using the bisecting technique. (A,C,D,F)
6. List the recommended predetermined vertical angulation settings used with the bisecting technique. (A,C,D,F)
7. Identify vertical angulation errors unique to the bisecting technique. (A,C,D,F)
8. Locate facial landmarks used for determining the points of entry with the bisecting technique. (A,C,D,F)
9. Demonstrate image receptor positioning, horizontal and vertical angulation, and points of entry for maxillary and mandibular periapical exposures using the bisecting technique. (A,C,D,F)

Chapter 15 The Bitewing Examination

1. Define the key terms. (A,C,D,F)
2. Describe the bitewing radiographic technique. (A,C,D,F)
3. Match the bitewing examination with two ideal uses. (A,C,D,F)
4. List the four sizes of image receptors that can be used for bitewing examinations, explaining advantages and limitations of each size. (A,C,D,F)
5. Identify the size and number of image receptors best suited for a bitewing examination for a child with primary and/or mixed dentition. (A,C,D,F)
6. Identify the size and number of image receptors best suited for a bitewing examination for an adult with and without periodontal disease. (A,C,D,F)
7. Differentiate between horizontal and vertical bitewing radiographs. (A,C,D,F)
8. Explain the role occlusion plays in aligning an image receptor for exposure of premolar and molar bitewing radiographs. (A,C,D,F)
9. Explain the effect of incorrect horizontal angulation on the resultant bitewing image. (A,C,D,F)
10. Identify positive and negative vertical angulations. (A,C,D,F)
11. State the recommended vertical angulation for bitewing exposures. (A,C,D,F)
12. Identify vertical angulation errors unique to the bitewing technique. (A,C,D,F)

13. Demonstrate image receptor placement, horizontal and vertical angulation, and points of entry for horizontal and vertical posterior bitewing examinations. (A,C,D,F)
14. Demonstrate image receptor placement, horizontal and vertical angulation, and points of entry for a vertical anterior bitewing examination. (A,C,D,F)

Chapter 16 The Occlusal Examination

1. Define the key terms. (A,C,D,F)
2. State the purpose of the occlusal examination. (A,C,D,F)
3. List the indications for occlusal radiographs. (A,C,D,F)
4. Match the topographical and cross-sectional techniques with the condition to be imaged. (A,C,D,F)
5. Compare patient head positions for the topographical and cross-sectional techniques. (A,C,D,F)
6. Demonstrate the steps for the maxillary and mandibular topographical surveys. (A,C,D,F)
7. Demonstrate the steps for the mandibular cross-sectional survey. (A,C,D,F)

Chapter 17 The Panoramic Examination

1. Define the key terms. (A,C,D,F)
2. List uses of panoramic radiography. (A,C,D,F)
3. Compare the advantages and limitations of panoramic versus intraoral radiographs. (A,C,D,F)
4. Explain how the panoramic technique relates to the principles of tomography. (A,C,D,F)
5. Identify the three dimensions of the focal trough. (A,C,D,F)
6. Identify and describe panoramic image receptors. (A,C,D,F)
7. Explain the role of intensifying screens in producing a radiographic image. (A,C,D,F)
8. Identify the intensifying screen type recommended ALARA. (A,C,D,F)
9. Describe the purpose of a panoramic cassette. (A,C,D,F)
10. List the components of a panoramic x-ray machine. (A,C,D,F)
11. Demonstrate how to use each of the head positioner guides found on a panoramic x-ray machine. (A,C,D,F)
12. Demonstrate the steps used to prepare a patient for exposure of a panoramic radiograph. (A,C,D,F)
13. Explain the use of a cape-style lead/lead equivalent barrier or the use of an apron without an attached thyroid collar. (A,C,D,F)
14. Match errors made in patient preparation procedures with the characteristic effect on the appearance of the panoramic radiograph. (A,C,D,F)
15. Identify the anatomical landmarks and planes used to position the dental arches correctly within the focal trough. (A,C,D,F)
16. Match errors made in patient-positioning procedures with the characteristic affect on the appearance of the panoramic radiograph. (A,C,D,F)
17. List exposure and image receptor handling errors and describe how these will affect the appearance of the panoramic radiograph. (A,C,D,F)

Chapter 18 Identifying and Correcting Undiagnostic Radiographs

1. Define the key terms. (A,C,D,F)
2. Understand the need for a retake policy. (A,C,D,F)
3. List the characteristics of a quality radiographic image. (A,C,D,F)
4. Recognize errors caused by incorrect radiographic techniques. (A,C,D,F)

5. Apply appropriate corrective actions for technique errors. (A,C,D,F)
6. Recognize errors caused by incorrect radiographic processing. (A,C,D,F)
7. Apply appropriate corrective actions for processing errors. (A,C,D,F)
8. Recognize errors caused by incorrect radiographic image receptor handling. (A,C,D,F)
9. Apply appropriate corrective actions for handling errors. (A,C,D,F)
10. Identify causes of film fog. (A,C,D,F)
11. Apply appropriate actions for preventing film fog. (A,C,D,F)

Chapter 19 Quality Control and Environmental Safety in Dental Radiography

1. Define the key terms. (A,C,D,F)
2. State the objectives of dental radiographic quality control. (A,C,D,F)
3. Explain the role a competent radiographer plays in quality assurance. (A,C,D,F)
4. Describe quality control tests for monitoring a dental x-ray machine. (A,C,D,F)
5. Describe quality control tests for monitoring a darkroom and processing equipment. (A,C,D,F)
6. Describe quality control tests for monitoring radiographic image receptors. (A,C,D,F)
7. Describe quality control tests for monitoring viewboxes and computer monitors used to view radiographic images. (A,C,D,F)
8. List precautions to put in place that protect digital radiographic images. (A,C,D,F)
9. List data supplied by Safety Data Sheets (SDS) for radiographic processing chemistry. (A,C,D,F)
10. Describe safe handling procedures for radiographic processing chemicals and materials. (A,C,D,F)
11. Describe environmentally sound options for disposal of radiographic processing chemistry and materials. (A,C,D,F)

Chapter 20 Image Orientation and Introduction to Interpretation

1. Define the key terms. (A,C,D,F)
2. List advantages of mounting film-based radiographs. (A,C,D,F)
3. Identify anatomic landmarks that assist with distinguishing radiographs of the maxilla and mandible. (A,C,D,F)
4. Describe characteristics of a quality film mount. (A,C,D,F)
5. Discuss the use and importance of the embossed film identification dot. (A,C,D,F)
6. Compare labial and lingual methods of film mounting. (A,C,D,F)
7. List steps to an orderly mounting procedure. (A,C,D,F)
8. List anatomic generalizations that aid in image orientation. (A,C,D,F)
9. Describe actions that will assist in correctly orienting digital images. (A,C,D,F)
10. Explain the difference between interpretation and diagnosis. (A,C,D,F)
11. Describe equipment used to view radiographic images. (A,C,D,F)
12. Demonstrate image viewing according to the suggested steps presented. (A,C,D,F)
13. Describe the use and care of radiographic images during and after patient care. (A,C,D,F)

Chapter 21 Recognizing Normal Radiographic Anatomy- Intraoral Radiographs

1. Define the key terms. (A,C,D,F)
2. Explain how two-dimensional radiographs present a challenge to developing interpretation skills. (A,C,D,F)
3. List facial and cranial bones important to radiographic interpretation. (A,C,D,F)

4. Differentiate between the radiographic appearance of cortical and cancellous bone. (A,C,D,F)
5. Differentiate between the radiographic appearance of the lamina dura and the PDL space. (A,C,D,F)
6. List and identify the radiographic appearance of the structures of the teeth. (A,C,D,F)
7. Demonstrate use of a systematic method for interpreting dental radiographs. (A,C,D,F)
8. Categorize bony landmarks as to whether they will appear radiopaque or radiolucent on a dental radiograph. (A,C,D,F)
9. Identify significant anatomy recorded on dental radiographs of the maxilla and mandible. (A,C,D,F)

Chapter 22 Recognizing Normal Radiographic Anatomy- Panoramic Radiographs

1. Define the key terms. (A,C,D,F)
2. Describe the unique appearance of normal anatomy as recorded by a panoramic radiograph. (A,C,D,F)
3. Explain why panoramic radiographs present with streaked and blurred images. (A,C,D,F)
4. List the types of tissues and artifacts that will be recorded on panoramic radiographs. (A,C,D,F)
5. Describe the appearance of air spaces on a panoramic radiograph. (A,C,D,F)
6. Explain how the panoramic technique produces ghost images. (A,C,D,F)
7. Identify maxillofacial bony anatomic landmarks of the maxilla and surrounding tissues as viewed on a panoramic radiograph. (A,C,D,F)
8. Identify maxillofacial bony anatomic landmarks of the mandible as viewed on a panoramic radiograph. (A,C,D,F)
9. Identify the hyoid bone and cervical vertebra as viewed on a panoramic radiograph . (A,C,D,F)
10. Identify maxillofacial soft tissues as viewed on a panoramic radiograph. (A,C,D,F)
11. Identify maxillofacial air spaces as viewed on a panoramic radiograph. (A,C,D,F)
12. Identify positioning guide artifacts as viewed on a panoramic radiograph. (A,C,D,F)
13. Identify ghost image artifacts as viewed on a panoramic radiograph. (A,C,D,F)

Chapter 23 Radiographic Appearance of Dental Materials and Foreign Objects

1. Define the key terms. (A,C,D,F)
2. Explain the need for a clinical examination in conjunction with radiographic interpretation. (A,C,D,F)
3. Explain the effect two-dimensional radiographs have on the identification of dental materials. (A,C,D,F)
4. Rank dental materials according to degree of radiopacity. (A,C,D,F)
5. Describe the role radiographs play in evaluating dental restorations. (A,C,D,F)
6. Identify the radiographic appearance of amalgam. (A,C,D,F)
7. Identify the radiographic appearance of composite resin and glass ionomer. (A,C,D,F)
8. Identify the radiographic appearance of full metal, PFM, and stainless steel crowns. (A,C,D,F)
9. Identify the radiographic appearance of a fixed bridge. (A,C,D,F)
10. Identify the radiographic appearance of retention pin and post and core restorative materials. (A,C,D,F)
11. Identify the radiographic appearance of dental liners, bases, and cements. (A,C,D,F)
12. Identify the radiographic appearance of endodontic fillers. (A,C,D,F)
13. Identify the radiographic appearance of implants, orthodontic, and surgical materials. (A,C,D,F)
14. Identify the radiographic appearance of an amalgam fragment. (A,C,D,F)

Chapter 24 The Use of Radiographs in the Detection of Dental Caries

1. Define the key terms. (A,C,D,F)
2. Explain why caries appear radiolucent on radiographs. (A,C,D,F)
3. Define the role radiographs play in detecting caries. (A,C,D,F)
4. Identify the ideal type of projection and technique factors that enhance a radiograph's ability to image caries. (A,C,D,F)
5. List and describe the four categories of the caries depth grading system. (A,C,D,F)
6. Describe the radiographic appearance of proximal surface caries. (A,C,D,F)
7. Describe the radiographic appearance of occlusal surface caries. (A,C,D,F)
8. Describe the radiographic appearance of buccal/lingual surface caries. (A,C,D,F)
9. Describe the radiographic appearance of cemental/root surface caries. (A,C,D,F)
10. Describe the radiographic appearance of recurrent and rampant caries. (A,C,D,F)
11. Explain the importance of radiographically monitoring arrested caries. (A,C,D,F)
12. Identify conditions that resemble dental caries radiographically and discuss how to distinguish these from caries. (A,C,D,F)

Chapter 25 The Use of Radiographs in the Evaluation of Periodontal Diseases

1. Define the key terms. (A,C,D,F)
2. List the uses of radiographs in the assessment of periodontal diseases. (A,C,D,F)
3. Differentiate between horizontal and vertical bone loss. (A,C,D,F)
4. Identify three local contributing factors for periodontal disease that radiographs can help detect. (A,C,D,F)
5. Explain the purpose of using radiographs to image root morphology. (A,C,D,F)
6. List the limitations of radiographs in the assessment of periodontal diseases. (A,C,D,F)
7. Explain the parameters for using vertical and horizontal bitewing, and periapical radiographs to record periodontal disease. (A,C,D,F)
8. Recognize the roles vertical and horizontal angulations play in imaging periodontal diseases. (A,C,D,F)
9. Describe the radiographic appearance of the normal periodontium. (A,C,D,F)
10. Describe the radiographic appearance of gingivitis. (A,C,D,F)
11. Describe the radiographic appearance of mild periodontitis. (A,C,D,F)
12. Describe the radiographic appearance of moderate periodontitis. (A,C,D,F)
13. Describe the radiographic appearance of severe periodontitis. (A,C,D,F)

Chapter 26 Describing Radiographic Anomalies, Lesions, and Opportunistic Screening

1. Define the key terms. (A,C,D,F)
2. Use correct terminology to describe the radiographic appearance of dental anomalies. (A,C,D,F)
3. Describe anomalies and pathologic lesions by density, size, shape, border, architecture, location, and affect on surrounding tissues. (A,C,D,F)
4. Differentiate between radiolucent, radiopaque, and lucentopaque lesions. (A,C,D,F)
5. Explain how to document the size of a lesion detected on a radiographic image. (A,C,D,F)
6. Differentiate between regular- and irregular-shaped lesions detected on a radiographic image. (A,C,D,F)

7. Differentiate between a well-defined and a poorly-defined border of a lesion detected on a radiographic image. (A,C,D,F)
8. Explain the difference between lesion architecture that is unilocular, multilocular, focal opacity, multifocal, or a target lesion. (A,C,D,F)
9. Explain the importance of documenting location of anomalies and lesions detected on a radiographic image. (A,C,D,F)
10. Explain the importance of examining adjacent structures and surrounding tissues for changes caused by an anomaly or lesion. (A,C,D,F)
11. List and describe the radiographic appearance of common developmental anomalies. (A,C,D,F)
12. List and describe the radiographic appearance of common radiolucent lesions. (A,C,D,F)
13. List and describe the radiographic appearance of common radiopaque lesions. (A,C,D,F)
14. Differentiate between external and internal resorption. (A,C,D,F)
15. List and describe the radiographic appearance of common lucent-opaque lesions. (A,C,D,F)
16. Explain the significance of opportunistic screening. (A,C,D,F)

Chapter 27 Pediatric Radiographic Techniques

1. Define the key terms. (A,C,D,F)
2. List signs and symptoms that would indicate a pediatric radiographic need. (A,C,D,F)
3. List conditions a pediatric patient might present with that would prompt a need to adapt a standard radiographic procedure. (A,C,D,F)
4. Identify factors that influence the number of radiographs, and size of image receptors to be exposed on a pediatric patient. (A,C,D,F)
5. Explain the reasoning behind the recommendation to use the largest size image receptor that can be tolerated by a pediatric patient. (A,C,D,F)
6. Determine the type and number of radiographs, and size of image receptor to use to image primary dentition. (A,C,D,F)
7. Determine the type and number of radiographs, and size of image receptor to use to image transitional mixed dentition. (A,C,D,F)
8. Identify extraoral radiographic examinations that may benefit a pediatric patient. (A,C,D,F)
9. Demonstrate adaptions and modifications to standard paralleling and bisecting techniques that aid in obtaining a pediatric radiographic examination. (A,C,D,F)
10. Adjust standard adult exposure settings to those settings considered appropriate for pediatric radiographs. (A,C,D,F)
11. Commit to Image Gently campaign goals. (A,C,D,F)
12. Demonstrate a radiographic examination use of Show-Tell-Do. (A,C,D,F)
13. Demonstrate a radiograph examination use of modeling. (A,C,D,F)
14. Interpret a set of pediatric radiographic images. (A,C,D,F)

Chapter 28 Radiographic Techniques for Patients with Special Needs

1. Define the key terms. (A,C,D,F)
2. Discuss strategies for managing apprehension during a radiographic examination. (A,C,D,F)
3. Discuss strategies for managing patients with autism spectrum disorder (ASD). (A,C,D,F)
4. Explain ways to manage a patient with disabilities. (A,C,D,F)
5. Identify opportunities to develop cultural sensitivity and cultural competence. (A,C,D,F)

6. Discuss strategies for managing radiographic procedures for a patient with age-related changes. (A,C,D,F)
7. Use evidence-based guidelines to educate patients who may be reluctant to accept radiographic assessment of need. (A,C,D,F)

Chapter 29 Radiographic Techniques for Specific Oral Conditions

1. Define the key terms. (A,C,D,F)
2. Demonstrate ability to appropriately adapt standard radiographic techniques to meet specific oral condition challenges. (A,C,D,F)
3. List and define gag reflex stimuli. (A,C,D,F)
4. Describe methods to prevent and manage a gag reflex during a radiographic examination. (A,C,D,F)
5. Demonstrate recommended image receptor placement when challenged with large, sensitive tori. (A,C,D,F)
6. Demonstrate image receptor placement for use with the paralleling and the bisecting techniques in edentulous regions. (A,C,D,F)
7. Explain the need to expose multiple radiographs of malaligned teeth. (A,C,D,F)
8. Explain how to avoid canine-premolar and molar overlap. (A,C,D,F)
9. Describe the difference between a standard and a disto-oblique periapical radiograph. (A,C,D,F)
10. List steps to obtain a maxillary and a mandibular disto-oblique periapical radiograph. (A,C,D,F)
11. Explain the need to alter an image receptor positioner to prevent unequal distribution of the arches. (A,C,D,F)
12. Explain how to overcome the challenge of not imaging distal of canines on a bitewing radiograph. (A,C,D,F)
13. Explain how to overcome the challenge of not imaging root apices on a periapical radiograph. (A,C,D,F)

Chapter 30 Supplemental and Extraoral Radiographic Techniques

1. Define the key terms. (A,C,D,F)
2. Explain the need for multiple radiographs during endodontic procedures. (A,C,D,F)
3. Describe the characteristics of an image receptor positioner used to expose working radiographs during endodontic procedures. (A,C,D,F)
4. List three methods of localization. (A,C,D,F)
5. Explain the relationship between shadow casting principles and the definitive method of localization. (A,C,D,F)
6. Explain the role the tube shift method of localization plays in imaging root canals. (A,C,D,F)
7. List the two radiographic images needed for the right angle method of localization. (A,C,D,F)
8. Explain the Same Lingual Opposite Buccal (SLOB) rule. (A,C,D,F)
9. Utilize the buccal-object rule to determine the buccal-lingual location of a foreign object. (A,C,D,F)
10. Explain the need for a specialized image receptor positioner when using a handheld x-ray device. (A,C,D,F)
11. List possible uses for duplicate radiographs. (A,C,D,F)
12. Describe the difference between duplicating and radiographic film. (A,C,D,F)
13. List possible uses of extraoral radiographs. (A,C,D,F)
14. Identify types of extraoral radiographs used to image the oral and maxillofacial regions. (A,C,D,F)

Chapter 31 Three-Dimensional Imaging

1. Define the key terms. (A,C,D,F)
2. Describe the purpose and use of three-dimensional imaging. (A,C,D,F)
3. Describe the three suggested categories of oral conditions for the prescription of a cone beam computed tomography (CBCT) examination. (A,C,D,F)
4. Explain how CBCT differs from medical computed tomography (CT). (A,C,D,F)
5. Explain the purpose of changing the field of view (FOV). (A,C,D,F)
6. Explain the effect changing voxel size has on an image. (A,C,D,F)
7. List the three anatomical planes of CBCT slice image data. (A,C,D,F)
8. List oral conditions that would most benefit from a CBCT examination. (A,C,D,F)
9. Discuss how CBCT settings can reduce radiation exposure. (A,C,D,F)
10. Describe the appearance of artifacts that occur on CBCT images. (A,C,D,F)
11. Explain the challenges to interpretation of image data produced by CBCT technology. (A,C,D,F)

DHYG 1070 Radiology Lecture
Spring Semester 2020 Lesson Plan

Date/Week	Chapter/Lesson	Content	Assignments & Tests Due Dates	Competency Area
January 9 **Thursday** **8:00-10:50**	Chapters 1-3	Dental Radiography: Historical Perspective and Future Trends Characteristics and Measurement of Radiation The Dental X-Ray Machine: Components and Functions		CC 1-3 GC b-c
January 13 Monday **Thursday** **8:00-10:50**	Chapters 4-6	Factors Affecting Radiographic Quality Effects of Radiation Exposure Radiation Protection	Classroom Preparation Assessment 1	CC 1-4 GC c
January 16 **Thursday** **8:00-12:00**	Chapters 7-11	Dental X-ray Film and Processing Methods Digital Radiography and Image Acquisition Infection Control Legal and Ethical Responsibilities Patient Relations and Education	Examination 1 Chapters 1-6	CC 4-5,8-9 GC c
January 23 Thursday			Examination 2 Chapters 7-11	CC 4,5, 8-9 GC c
January 27 Monday	Chapters 12-15	Introduction to Radiographic Examinations The Periapical Examination-Paralleling and Bisecting Angle Techniques Bitewing Examination	Classroom Preparation Assessment 2	CC 7 GC c
January 30 Thursday			Examination 3 Chapters 12-15	CC 7 GC c
February 3 Monday	Chapters 16-19	Occlusal Examination Panoramic Examination Identifying and Correcting Undiagnostic Radiographs Quality Control and Environmental Safety in Dental Radiography	Classroom Preparation Assessment 3	CC 7 GC c
February 6 Thursday			Examination 4 Chapters 16-19	CC 7 GC c

Date/Week	Chapter/Lesson	Content	Assignments & Tests Due Dates	Competency Area
February 10 Monday	Chapters 20-23	Image Orientation and Introduction to Interpretation Recognizing Normal Radiographic Anatomy- Intraoral Radiographs and Panoramic Radiographs Radiographic Appearance of Dental Materials and Foreign Objects	Classroom Preparation Assessment 4	CC 6 GC c
February 13 Thursday			Examination 5 Chapters 20-23	CC 6 GC c
February 17 Monday	Chapters 24-26	The Use of Radiographs in the Detection of Dental Caries and Periodontal Diseases Describing Radiographic Anomalies, Lesions, and Opportunistic Screening	Classroom Preparation Assessment 5	CC 6 GC c
February 20 Thursday			Examination 6 Chapters 24-26	CC 6 GC c
February 24 Monday	Chapters 27-31	Pediatric Radiographic Techniques Radiographic Techniques for Patients with Special Needs Radiographic Techniques for Oral Conditions Supplemental and Extraoral Radiographic Techniques Three-Dimensional Imaging	Classroom Preparation Assessment 6	CC 4,5,9 GC c
February 27 **Thursday 8:00**		Comprehensive Final Examination	Examination 7 Chapters 1-31 Everyday Ethics Due- A radiology student dilemma-ethical decision making	CC 1-9 GC b-c

MAJOR COURSE COMPETENCIENCES (CC)

1. Radiation physics principles
2. Radiation biology
3. Radiation safety
4. Radiographic quality assurance
5. Imaging theory
6. Radiographic interpretation
7. Radiographic need
8. Legal issues of dental radiography
9. Digital radiography principles and techniques

GENERAL EDUCATION CORE COMPETENCIES (GC)

a. The ability to utilize standard written English.
b. The ability to solve practical mathematical problems.
c. The ability to read, analyze, and interpret information.

Please note-Lesson plan and syllabus are subject to change at discretion of instructor.