Dental Hygiene Program
Course Syllabus
Dental Radiology
DHYG 1304

Semester with Course Reference Number (CRN)
Fall Semester 2017
40234 – Hilda Guerrero; 40237 – Liliana Galvan; 40242 – Donna DeVries; 40245 – Susan Vo, Substitute Instructors: Michele Giles, Patricia Jenkins, Giang Nguyen

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Course Location/Time
Coleman College
Lecture: Thursday 9:00 am – 11:00 pm
Lecture Room: 577
Lab: Monday 1:00 pm- 5:00 pm
Lab Room: 562 (Dental Hygiene Clinic)
<table>
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**Course Description**

Radiation physics, biology, hygiene, and safety theories with an emphasis on the fundamentals of oral radiographic techniques and interpretation of Radiographs. Includes exposure of intra-oral radiographs, quality assurance, radiographic interpretation, patient selection criteria, and other ancillary radiographic techniques.

**Course Prerequisite(s):**

- BIOL 2301, 2101
- CHEM 1305
- ENGL 1301
- SOCI 1301
- Admission to the Dental Hygiene Program

**Course Co-requisite(s):**

- BIOL 2302, 2102

**Instructional Materials**


Exercises in Oral Radiography Techniques – A Laboratory Manual, Current Edition
Evelyn M. Thomson, *Old Dominion University*

HCC Eagle Online Canvas

**Academic Discipline/CTE Program Learning Outcomes**

1. The dental hygiene student will be able to explain the principles of radiation as it relates to physics, biology, hygiene, and safety.
2. The dental hygiene student will be able to produce and interpret diagnostically acceptable radiographs utilizing various radiographic techniques.
3. The dental hygiene student will be able to apply the principles of quality assurance and ethics in dental radiography.
4. The dental hygiene student will be able to describe the fundamentals of oral radiographic techniques and interpretation.

**Course Student Learning Outcomes (SLO): 4 to 7**

1. Adhere to state and federal laws, recommendations and regulations in the provision of dental hygiene care
2. Perform a comprehensive examination using clinical, radiographic, periodontal, dental charting, and other data collection procedures to assess the patient’s needs.
3. Obtain diagnostic quality radiographs.

**Learning Objectives**

Adhere to state and federal laws, recommendations and regulations in the provision of dental hygiene care
(Numbering System should Be linked to SLO – e.g., 1.1, 1.2, 1.3, etc.)

1. List the federal and state regulations affecting the use of dental x-ray equipment
2. Discuss the regulation of dental x-ray machines at the federal, state, and local levels
3. Describe how to obtain informed consent from a patient

Perform a comprehensive examination using clinical, radiographic, periodontal, dental charting, and other data collection procedures to assess the patient’s needs

1. Discuss the steps with the patient used before, during, and after x-ray exposure
2. Discuss the patient’s rights with regard to their records
3. Describe how to obtain informed consent from a patient

Obtain diagnostic quality radiographs

1. Describe a diagnostic dental radiograph
2. Know the procedure necessary prior, during, and following x-ray exposure
3. Identify and describe the appearance of unexposed film, film exposed to light and underexposed film and overexposed film errors as well as horizontal and vertical angulations errors

### SCANS and/or SCANS Core Curriculum Competencies

#### SCANS
Adhere to state and federal laws, recommendations and regulations in the provision of dental hygiene care
- Workplace Competencies – Information – Acquires & Evaluates
- Workplace Competencies – Information – Interprets & Communicates

Perform a comprehensive examination using clinical, radiographic, periodontal, dental charting, and other data collection procedures to assess the patient’s needs.
- Workplace Competencies – Information – Acquires & Evaluates
- Workplace Competencies – Information – Interprets & Communicates

Obtain diagnostic quality radiographs
- Workplace Competencies – Systems – Understands Systems
- Workplace Competencies – Systems – Monitors & corrects Performance

### Instructional Methods
Face to Face, Canvas Learning Management System (as supplement)

### Student Assignments
Adhere to state and federal laws, recommendations and regulations in the provision of dental hygiene care
- Various assigned readings from textbooks, peer-reviewed
- Discussions

Perform a comprehensive examination using clinical, radiographic, periodontal, dental charting, and other data collection procedures to assess the patient’s needs.
- Various assigned readings from textbooks, peer-reviewed
- Discussions

Obtain diagnostic, quality radiographs.
- Various assigned readings from textbooks, peer-reviewed
- Discussions
- Projects

### Student Assessment(s)
Adhere to state and federal laws, recommendations and regulations in the provision of dental care
- No assessments selected for this outcome

Perform a comprehensive examination using clinical, radiographic, periodontal, dental charting, and other data collection procedures to assess the patient’s needs.
- Quizzes/Tests which may include but not limited to: definitions, matching, multiple choice, true/false, short answer, brief essay
Obtain diagnostic quality radiographs.
- Quizzes/Tests which may include but not limited to: definitions, matching, multiple choice, true/false, short answer, brief essay

**Instructor's Requirements**

**SPECIFIC COURSE OBJECTIVES**


1. Define the primary purpose of infection control.
2. Demonstrate infection control protocol prior to, during, and after the radiographic procedure.
3. Identify the three major components of a dental x-ray machine.
4. Identify and explain the function of the five controls on the control panel.
5. Differentiate between alternating and direct electrical currents.
6. Explain the relationships between AC and DC dental x-ray machines and their effects on film and digital image receptors.
7. State the three conditions necessary for the production of x-rays.
8. Draw and label the parts of a dental x-ray tube.
9. Trace the production of x-rays from the time the exposure button is activated until x-rays are released from the tube.
10. Demonstrate, in sequence, the steps in operating the dental x-ray machine.
11. List the conditions that make up the chain of infection.
12. State the purpose of infection control.
13. Identify methods of breaking the chain of infection.
14. State the roles the Centers for Disease Control and Prevention (CDC) and the Occupational Safety and Health Administration (OSHA) play in providing guidelines for infection control.
15. List personal protective equipment (PPE) recommended for dental radiographers.
16. Explain how to maintain hand and respiratory hygiene.
17. Compare the different levels of Environmental Protection Agency (EPA)-regulated disinfectants.
18. Explain the role of surface barriers in infection control.
19. Differentiate between semicritical and noncritical objects used during radiographic procedures.
20. Demonstrate competency in following infection control protocol prior to, during, and after radiographic procedures.
21. Demonstrate competency in following infection control protocol for handling and processing intraoral image receptors.
22. Demonstrate competency in following infection control protocol when using an automatic processor with a daylight loader attachment.
23. State the difference between intraoral and extraoral radiography.
24. Compare the three intraoral radiographic examinations.
25. Identify the two intraoral techniques.
26. List the five rules for shadow casting.
27. Determine conditions that affect the selection of image receptor size.
28. Select the type and number of image receptors required for a full mouth survey.
29. Explain horizontal and vertical angulation.
30. Explain point of entry.
31. List five contraindications for using the patient’s finger to hold the image receptor during exposure.
32. Explain the basic design of image receptor positioners/holders.
33. Describe proper patient seating position.
34. Demonstrate a systematic and orderly sequence of the exposure procedure.
35. State when x-rays were discovered and by whom.
36. Trace the history of radiography, noting the prominent contributors.
37. List two historical developments that made dental x-ray machines safer.
38. Explain how rectangular PIDs reduce patient radiation exposure.
39. Identify the two techniques used to expose dental radiographs.
40. List five uses of dental radiographs.
41. Become aware of other imaging modalities available for use in the detection and evaluation of oral conditions.
42. Explain how two-dimensional radiographs present a challenge to developing interpretation skills.
43. List facial and cranial bones important to radiographic interpretation.
44. Differentiate between the radiographic appearance of cortical and cancellous bone.
45. Differentiate between the radiographic appearance of the lamina dura and the PDL space.
46. List and identify the radiographic appearance of the structures of the teeth.
47. Demonstrate use of a systematic method for interpreting dental radiographs.
48. Categorize bony landmarks as to whether they will appear radiopaque or radiolucent on a dental radiograph.
49. Identify significant anatomy recorded on dental radiographs of the maxilla and mandible.
50. Describe the bitewing radiographic technique.
51. Match the bitewing examination with two ideal uses.
52. List the four sizes of image receptors that can be used for bitewing examinations, explaining advantages and limitations of each size.
53. Identify the size and number of image receptors best suited for a bitewing examination for a child with primary and/or mixed dentition.
54. Identify the size and number of image receptors best suited for a bitewing examination for an adult with and without periodontal disease.
55. Differentiate between horizontal and vertical bitewing radiographs.
56. Explain the role occlusion plays in aligning an image receptor for exposure of premolar and molar bitewing radiographs.
57. Explain the effect of incorrect horizontal angulation on the resultant bitewing image.
58. Identify positive and negative vertical angulations.
59. State the recommended vertical angulation for bitewing exposures.
60. Identify vertical angulation errors unique to the bitewing technique.
61. Demonstrate image receptor placement, horizontal and vertical angulation, and points of entry for horizontal and vertical posterior bitewing examinations.
62. Demonstrate image receptor placement, horizontal and vertical angulation, and points of entry for a vertical anterior bitewing examination.

Lab/Lecture Week 2 - Bitewing Radiographic Technique, Digital Radiography and Image Acquisition, The Periapical Examination-Paralleling Technique
1. Demonstrate proficiency in placing, exposing, and processing bitewing radiographs.
2. Correctly identify positive and negative vertical angulation of the PID (positioning indicating device).
3. Critique a bitewing series for correct (a) placement of the image receptor intraorally; (b) vertical and (c) horizontal angulation of the PID; and (d) exposure by centering the image receptor within the diameter of the x-ray beam.
4. Explain the fundamental concepts of digital radiography and image acquisition.
5. Describe the characteristics of a digital image.
6. List equipment needed to acquire a digital image.
7. Explain the use of software in digital image interpretation.
8. Differentiate between direct and indirect digital imaging.
9. Describe the difference between narrow and wide dynamic range.
10. Describe and compare three types of digital image receptors.
11. Discuss digital imaging’s effect on radiation does to a patient.
12. Identify benefits and limitation of digital radiographic imaging.
13. Discuss the principles of the paralleling technique.
14. List the advantages and limitations of the paralleling technique.
15. Identify, assemble, and position image receptor holders for use with the paralleling technique.
16. Explain the importance of achieving accurate horizontal and vertical angulation in obtaining quality diagnostic radiographs using the paralleling technique.
17. Identify vertical angulation errors unique to the paralleling technique.
18. Demonstrate the image receptor positioning, horizontal and vertical angulation, and points of entry for maxillary and mandibular periapical exposures using the paralleling technique.

Lab/Lecture Week 3 - Periapical Radiographs – Paralleling Technique, Identifying and Correcting Undiagnostic Radiographs, Image Orientation and Introduction to Interpretation, Radiographic Techniques for Patients with Special Needs
1. Demonstrate proficiency in placing, exposing, and processing anterior and posterior periapical radiographs using the paralleling technique.
2. Critique a full mouth series of intraoral radiographs consisting of anterior and posterior periapicals for correct (a) placement of the image receptor intraorally, (b) vertical and (c) horizontal angulation of the PID, and (d) direction of the x-ray beam over the entire image receptor.
3. Understand the need for retake policy.
4. List the characteristics of a quality radiographic image.
5. Recognize errors caused by incorrect radiographic techniques.
6. Apply appropriate corrective actions for technique errors.
7. Recognize errors caused by incorrect radiographic processing.
8. Apply appropriate corrective action for processing errors.
9. Recognize errors caused by incorrect radiographic image receptor handling.
10. Apply appropriate corrective actions for handling errors.
11. Identify causes of film fog.
12. Apply appropriate actions for preventing film fog.
14. Identify anatomic landmarks that assist with distinguishing radiographs of the maxilla and mandible.
15. Describe characteristics of a quality film mount.
16. Discuss the use and importance of the embossed film identification dot.
17. Compare labial and lingual methods of film mounting.
18. List steps to an orderly mounting procedure.
19. List anatomic generalization that aid in image orientation.
20. Describe actions that will assist in correctly orienting digital images.
21. Explain the difference between interpretation and diagnosis.
22. Describe equipment used to view radiographic images.
23. Demonstrate image viewing according to the suggested steps presented.
24. Describe the use and care of radiographic images during and after patient care.
25. Demonstrate ability to appropriately adapt standard radiographic techniques to meet specific oral condition challenges.
26. List and define gag reflex stimuli.
27. Describe methods to prevent and manage a gag reflex during a radiographic examination.
28. Demonstrate recommended image receptor placement when challenged with large, sensitive tori.
29. Demonstrate image receptor placement for use with the paralleling technique and the bisecting technique in edentulous regions.
30. Explain the need to expose multiple radiographs of malaligned teeth.
31. Explain how to avoid canine-premolar and molar overlap.
32. Describe the difference between a standard and a disto-oblique periapical radiograph.
33. List steps to obtain a maxillary and a mandibular disto-oblique periapical radiograph.
34. Explain the need to alter an image receptor positioner to prevent unequal distribution of the arches.
35. Explain how to overcome the challenge of not imaging distal of canines on a bitewing radiograph.
36. Explain how to overcome the challenge of not imaging root apices on a periapical radiograph.

Lab/Lecture Week 4 – Mounting and Radiographic Landmarks, Radiographic Appearance of Dental Materials and Foreign Objects, The Use of Radiographs in the Detection of Dental Caries, The Use of Radiographs in the Evaluation of Periodontal Disease
1. Differentiate between labial and lingual methods of mounting.
2. Correctly mount a full mouth series of radiographs including bitewings, using the labial method.
3. Locate distinct maxillary and mandibular anatomical landmarks on a radiographic image.
4. Distinguish between a radiolucent and a radiopaque landmark on an intraoral radiograph.
5. Explain the need for a clinical examination in conjunction with radiographic interpretation.
6. Explain the effect two-dimensional radiographs have on the identification of dental materials.
7. Rank dental materials according to degree of radiopacity.
8. Describe the role radiographs play in evaluating dental restorations.
9. Identify the radiographic appearance of amalgam.
10. Identify the radiographic appearance of composite resin and glass ionomer.
11. Identify the radiographic appearance of full metal, PFM, and stainless steel crowns.
12. Identify the radiographic appearance of a fixed bridge.
13. Identify the radiographic appearance of retention pin and post and core restorative materials.
15. Identify the radiographic appearance of endodontic fillers.
16. Identify the radiographic appearance of implants, orthodontic, and surgical materials.
17. Identify the radiographic appearance of an amalgam fragment.
18. Explain why caries appear radiolucent on radiographs.
19. Define the role radiographs play in detecting caries.
20. Identify the ideal type of projection and technique factors that enhance a radiograph’s ability to image caries.
21. List and describe the four categories of the caries depth grading system.
22. Describe the radiographic appearance of proximal surface caries.
23. Describe the radiographic appearance of occlusal surface caries.
24. Describe the radiographic appearance of buccal/lingual surface caries.
25. Describe the radiographic appearance of cemental/root surface caries.
26. Describe the radiographic appearance of recurrent and rampant caries.
27. Explain the importance of radiographically monitoring arrested caries.
28. Identify conditions that resemble dental caries radiographically and discuss how to distinguish these from caries.
29. List the uses of radiographs in the assessment of periodontal diseases.
30. Differentiate between horizontal and vertical bone loss.
31. Identify three local contributing factors for periodontal disease that radiographs can help detect.
32. Explain the purpose of using radiographs to image root morphology.
33. List the limitations of radiographs in the assessment of periodontal diseases.
34. Explain the parameters for using vertical and horizontal bitewing, and periapical radiographs to record periodontal disease.
35. Recognize the roles vertical and horizontal angulations play in imaging periodontal diseases.
36. Describe the radiographic appearance of the normal periodontium.
37. Describe the radiographic appearance of gingivitis.
38. Describe the radiographic appearance of mild periodontitis.
39. Describe the radiographic appearance of moderate periodontitis.
40. Describe the radiographic appearance of severe periodontitis.

Lab/Lecture Week 5 – Describing Radiographic Anomalies, Lesions, and Opportunistic Screening, Characteristics and Measurement of Radiation, Radiation Protection
1. Use correct terminology to describe the radiographic appearance of dental anomalies.
2. Describe anomalies and pathologic lesions by density, size, shape, border, architecture, location, and affect on surrounding tissues.
3. Differentiate between radiolucent, radiopaque, and lucent-opaque lesions.
4. Explain how to document the size of a lesion detected on a radiographic image.
5. Differentiate between regular-and irregular-shaped lesions detected on a radiographic image.
6. Differentiate between a well-defined and a poorly-defined border of a lesion detected on a radiographic image.
7. Explain the difference between lesion architecture that is unilocular, multilocular, focal opacity, multifocal, or a target lesion.
8. Explain the importance of documenting location of anomalies and lesions detected on a radiographic image.
9. Explain the importance of examining adjacent structures and surrounding tissues for changes caused by an anomaly or lesion.
10. List and describe the radiographic appearance of common developmental abnormalities.
11. List and describe the radiographic appearance of common radiolucent lesions.
12. List and describe the radiographic appearance of common radiopaque lesions.
13. Differentiate between external and internal resorption.
14. List and describe the radiographic appearance of common lucent-opaque lesions.
15. Explain the significance of opportunistic screening.
17. Describe the process of ionization.
18. Differentiate between radiation and radioactivity.
19. List the properties shared by all energies of the electromagnetic spectrum.
20. Explain the relationship between wavelength and frequency.
23. Identify and describe the two processes by which kinetic energy is converted to electromagnetic energy within the dental x-ray tube.
24. Differentiate between primary, secondary, and scatter radiations.
25. List and describe the four possible interactions of dental x-rays with matter.
26. Define the terms used to measure x-radiation.
27. Match the Système Internationale (SI) units of x-radiation measurement to the corresponding traditional terms.
28. Identify three sources of naturally occurring background radiation.
29. Adopt the ALARA concept.
30. Use the selection criteria guidelines to explain the need for prescribed radiographs.
31. Explain the roles communication, working knowledge of quality radiographs, and education play in preventing unnecessary radiation exposure.
32. Explain the roles technique and exposure choices play in preventing unnecessary radiation exposure.
33. Compare inherent, added, and total filtration.
34. State the federally mandated limited diameter of the intraoral dental x-ray.
35. List two functions of a collimator.
36. Explain how PID shape and length contribute to reducing patient radiation exposure.
37. Identify film speeds currently available for use in dental radiography.
38. Explain the role image receptor holders play in reducing patient radiation exposure.
39. Advocate the use of lead/lead equivalent thyroid collar and apron.
40. Explain the role darkroom protocol and film handling play in reducing patient radiation exposure.
41. Summarize radiation protection methods for a patient.
42. Explain the roles times, shielding, and distance play in protecting a radiographer from unnecessary radiation exposure.
43. Utilize distance and location to take a position and appropriate distance and angle for the x-ray source during an exposure.
44. Describe radiation safety protocol for use with portable, handheld x-ray devices.
45. Describe radiation monitoring devices.
46. Summarize radiation protection methods for a radiographer.
47. List organization responsible for recommending and setting exposure limits.
48. State the maximum permissible dose (MPD) for radiation workers and for the general public.

Lab / Lecture Week 6 – Factors Affecting Radiographic Quality, Effects of Radiation
1. Evaluate a radiographic image identifying the basic requirements of acceptability.
2. Differentiate between radiolucent and radiopaque areas on a dental radiograph.
3. Define radiographic density and contrast.
4. List the rules of casting a shadow image.
5. List the variables that affect film contrast.
6. Describe how geometric factors affect image sharpness.
7. Identify the causes of image magnification and distortion.
8. Explain the effect milliamperage, kilovoltage, and exposure time have on image density.
9. Explain the effect variations in target-surface, object image receptor, and target-image receptor distances have on image quality.
10. Demonstrate practical use of the inverse square law.
11. Differentiate between the direct and indirect theories of biological damage.
12. Differentiate between a threshold dose-response curve and a non-threshold dose-response curve.
13. List the sequence of events that may follow exposure to radiation.
14. Identify factors that determine whether radiation injuries are likely.
15. List three conditions that influence the radiosensitivity of a cell.
16. Determine the relative radiosensitivity or radioresistance of various kinds of cells in the body.
17. Explain the difference between deterministic and stochastic effects.
18. Explain the difference between stomatic and genetic effects.
19. Explain the difference between short-and long-term effects of irradiation.
20. Identify critical tissues for dental radiography.
21. Discuss the risks versus benefits of dental radiographs.
22. Utilize effective dose equivalent to make radiation exposure comparisons.

**Lab/Lecture Week 7 – Legal and Ethical Responsibilities, Patient Relations and Education, The Periapical Examination – Bisecting Technique**

1. Discuss federal and state regulations concerning the use of dental x-ray equipment.
2. Describe licensure requirements for individuals who expose dental radiographs.
3. Identify specific risk management strategies pertaining to dental radiography.
4. Respond to a patient exercising self-determination in refusing a radiographic examination.
5. List criteria for informed consent.
6. List the details that must be documented in a patient’s record regarding a radiographic examination.
7. Describe elements required before releasing a copy of a patient’s radiographic images.
8. State how long radiographic images should be maintained and available.
9. Describe the role of DICOM.
10. List the advantages of cloud sharing over other methods of storing and sharing digital radiographic images.
11. Identify a cloud sharing system that is HIPAA compliant.
13. Identify the role professional ethics play in guiding a radiographer’s behavior.
14. Value the need for patient cooperation in producing quality radiographs.
15. List aspects of patient relations that help to gain confidence and cooperation.
16. Explain how professional appearance and first impression affect patient relations.
17. Explain how to project an attitude of professionalism.
18. State examples of facilitation skills.
19. Explain the relationship between verbal and nonverbal communication.
20. Demonstrate the patient management strategy Show-Tell-Do.
21. Explain the goals of active listening.
22. Explain the goals of patient education.
24. Respond to questions frequently asked regarding a radiographic examination.
25. Discuss the principles of the bisecting technique.
26. List the advantages and limitations of the bisecting technique.
27. Identify, assemble, and position image receptor holder for use with the bisecting technique and distinguish these holders from those used with the paralleling technique.
28. Explain the importance of achieving accurate horizontal and vertical angulation in obtaining quality diagnostic radiographs using the bisecting technique.
29. Identify vertical angulation errors unique to the bisecting technique.
30. Locate facial landmarks used for determining the points of entry with the bisecting technique.
31. Demonstrate image receptor positioning, horizontal and vertical angulation, and points of entry for maxillary and mandibular periapical exposures using the bisecting technique.
Lab/Lecture Week 8 – Periapical Radiographs – Bisecting Technique, The Panoramic Examination, Recognizing Normal Radiographic Anatomy – Panoramic Radiographs

1. Alter the Stabe image receptor holder for use with the bisecting technique.
2. Demonstrate proficiency in placing, exposing, and processing anterior and posterior periapical radiographs using the bisecting technique.
3. Critique a full mouth series of intraoral radiographs consisting of anterior and posterior periapicals, for correct (a) placement of the image receptor intraorally, (b) vertical and (c) horizontal angulation of PID and (d) direction of the x-ray beam over the entire image receptor.
4. List the uses of panoramic radiography.
5. Compare the advantages and limitations of panoramic versus intraoral radiographs.
6. Explain how the panoramic technique relates to the principles of tomography.
7. Identify the three dimensions of the focal trough.
8. Identify and describe panoramic image receptors.
9. Explain the role of intensifying screens in producing a radiographic image.
10. Identify the intensifying screen type recommended ALARA.
11. Describe the purpose of a panoramic cassette.
12. List the components of a panoramic x-ray machine.
13. Demonstrate how to use each of the head positioner guides found on a panoramic x-ray machine.
14. Demonstrate the steps used to prepare a patient for exposure of a panoramic radiograph.
15. Explain the use of a cape-style lead/lead equivalent barrier or the use of an apron without an attached thyroid collar.
16. Match errors made in patient preparation procedures with the characteristic effect on the appearance of the panoramic radiograph.
17. Identify the anatomical landmarks and planes used to position the dental arches correctly within the focal trough.
18. Match errors made in patient-positioning procedures with the characteristic affect on the appearance of the panoramic radiograph.
19. List exposure and image receptor handling errors and describe how these will affect the appearance of the panoramic radiograph.
20. Describe the unique appearance of normal anatomy as recorded by a panoramic radiograph.
21. Explain why panoramic radiographs present with streaked and blurred images.
22. List the types of tissues and artifacts that will be recorded on panoramic radiographs.
23. Describe the appearance of air spaces on a panoramic radiograph.
24. Explain how the panoramic technique produces ghost images.
25. Identify maxillofacial bony anatomic landmarks of the maxilla and surrounding tissues as viewed on a panoramic radiograph.
26. Identify maxillofacial bony anatomic landmarks of the mandible as viewed on a panoramic radiograph.
27. Identify the hyoid bone and cervical vertebra as viewed on a panoramic radiograph.
28. Identify maxillofacial soft tissues as viewed on a panoramic radiograph.
29. Identify maxillofacial airspaces as viewed on a panoramic radiograph.
30. Identify positioning guide artifacts as viewed on a panoramic radiograph.
31. Identify ghost image artifacts as viewed on a panoramic radiograph.

Lab/Lecture Week 9 – Panoramic Radiographic Technique, The Occlusal Examination, Quality Control and Environmental Safety in Dental Radiography

1. Demonstrate proficiency in preparing the panoramic image receptor for exposure.
2. Demonstrate correct patient positioning to achieve a quality panoramic radiograph.
3. Identify and apply corrective actions for common image receptor care and handling, unit preparation, patient preparation and positioning, exposure and processing errors that compromise the quality of a panoramic radiograph.
4. State the purpose of the occlusal examination.
5. List the indications for occlusal radiographs.
6. Match the topographical and cross-sectional techniques with the condition to be imaged.
7. Compare patient head positions for the topographical and cross-sectional techniques.
8. Demonstrate the steps for the maxillary and mandibular topographical surveys.
9. Demonstrate the steps for the mandibular cross-sectional survey.
10. State the objectives of dental radiographic quality control.
11. Explain the role a competent radiographer plays in quality assurance.
12. Describe the quality control tests for monitoring a dental x-ray machine.
13. Describe quality control tests for monitoring a darkroom and processing equipment.
14. Describe quality control tests for monitoring radiographic image receptors.
15. Describe quality control tests for monitoring viewboxes and computer monitors used to view radiographic images.
16. List precautions to put in place that protect digital radiographic images.
17. List data supplied by Safety Data Sheets (SDS) for radiographic processing chemistry.
18. Describe safe handling procedures for radiographic processing chemicals and materials.
19. Describe environmentally sound options for disposal of radiographic processing chemistry and materials.

Lab/Lecture Week 10 — Occlusal Radiographic Techniques, Pediatric Radiographic Techniques, Radiographic Techniques for Patients with Special Needs
1. Demonstrate proficiency in placing, exposing, and processing topographical occlusal radiographs.
2. Demonstrate proficiency in placing, exposing, and processing cross-sectional occlusal radiographs.
3. Identify the buccal/lingual positions of objects radiographically through interpretation of an occlusal radiographic image.
4. List signs and symptoms that would indicate a pediatric radiographic need.
5. List conditions a pediatric patient might present with that would prompt a need to adapt a standard radiographic procedure.
6. Identify factors that influence the number of radiographs, and size of image receptors to be exposed on a pediatric patient.
7. Explain the reasoning behind the recommendation to use the largest size image receptor that can be tolerated by a pediatric patient.
8. Determine the type and number of radiographs, and size of image receptor to use to image primary dentition.
9. Determine the type and number of radiographs, and size of image receptor to use to image transitional mixed dentition.
10. Identify extraoral radiographic examinations that may benefit a pediatric patient.
11. Demonstrate adaptations and modifications to standard paralleling and bisecting techniques that aid in obtaining a pediatric radiographic examination.
12. Adjust standard adult exposure settings to those settings considered appropriate for pediatric radiographs.
13. Commit to Image Gently® campaign goals.
14. Demonstrate a radiographic examination use of Show-Tell-Do.
15. Demonstrate a radiographic examination use of modeling.
16. Interpret a set of pediatric radiographic images.
17. Discuss strategies for managing apprehension during a radiographic examination.
18. Discuss strategies for managing patients with autism spectrum disorder (ASD).
19. Explain ways to manage a patient with disabilities.
20. Identify opportunities to develop cultural sensitivity and cultural competence.
21. Discuss strategies for managing radiographic procedures for a patient with age-related changes.
22. Use evidence-based guidelines to educate patients who may be reluctant to accept radiographic assessment of need.

Lab/Lecture Week 11 – THANKSGIVING BREAK

Lab/Lecture Week 12 – Dental X-ray Film and Processing Methods
1. List and describe the four parts of an intraoral film.
2. Describe latent image formation and explain how it becomes a visible radiographic image.
3. List and describe the four parts of an intraoral film packet.
4. Identify the intraoral film speeds currently available for dental radiographs.
5. Explain how duplicating film is different than radiographic film.
6. List in sequence the steps in processing dental films.
7. Identify and explain the role developer plays in processing a radiographic image.
8. Identify and explain the role fixer plays in processing a radiographic image.
9. List requirements for safelighting a darkroom.
10. Identify equipment needed for manual film processing.
11. Identify equipment needed for automatic film processing.
12. Compare manual and automatic processing methods, stating advantages and disadvantages of each.
13. Explain the role chemical replenishment and solution changes play in maintaining optimal processing chemistry.
14. List conditions that will diminish the quality of stored dental x-ray film.

Lab/Lecture Week 13 – Supplemental and Extraoral Radiographic Techniques, Three-dimensional Imaging
1. Explain the need for multiple radiographs during endodontic procedures.
2. Describe the characteristics of an image receptor positioner used to expose working radiographs during endodontic procedures.
3. List three methods of localization.
4. Explain the relationship between shadow casting principles and the definitive method of localization.
5. Explain the role the tube shift method of localization plays in imaging root canals.
6. List the two radiographic images needed for the right angle method of localization.
7. Explain the S.L.O.B. rule.
8. Utilize the buccal-object rule to determine the buccal-lingual location of a foreign object.
9. Explain the need for a specialized image receptor positioner when using a handheld x-ray device.
10. List possible uses for duplicate radiographs.
11. Describe the difference between duplicating and radiographic film.
12. List possible uses of extraoral radiographs.
13. Identify types of extraoral radiographs used to image the oral and maxillofacial regions.
14. Describe the purpose and use of three-dimensional imaging.
15. Describe the three suggested categories of oral conditions for the prescription of a cone beam computed tomography (CBCT) examination.
16. Explain how CBCT differs from medical computed tomography (CT).
17. Explain the purpose of changes the field of view (FOV).
18. Explain the effect changing voxel size has on an image.
19. List the three anatomical planes of CBCT slice image data.
20. List oral conditions that would most benefit from a CBCT examination.
21. Discuss how CBCT settings can reduce radiation exposure.
22. Describe the appearance of artifacts that occur on CBCT images.
23. Explain the challenges to interpretation of image data produced by CBCT technology.

Lab/Lecture Week 14 - Final

ASSIGNMENTS for LAB and LECTURE: Must be completed on time and according to specified criteria. You are responsible for all reading assignments in course texts and dental hygiene care handouts in addition to the content of the lecture and laboratory session themselves. Since information in each assignment will be used during the class sessions for discussions, it is essential that materials be carefully studied prior to class or laboratory.

Failure to follow directions in an assignment, quiz, exam, daily grade, etc., in lecture or lab could result in a ‘0’ for that specific assignment in question.

TEST POLICY:
All written paper tests administered in the classroom are typically taken with a scantron. Answers must be filled in on both the paper test and scantron form. However, ONLY the answers on the scantron form will be accepted for calculation of test grades.

In the event the scantron form is destroyed by the grading machine (mechanical failure), the paper test will be accepted in place of the scantron form for calculation of test grades.

Scantron sheets that are bent, torn, or incorrect (off brand) will not be accepted by the instructor for grading.

However, tests may be administered via computer using the Eagleonline Canvas learning management software. Upon completion of a test administered via Canvas, you will receive your grade immediately.

Any student arriving after a test or quiz has been handed out will receive a 3 point deduction on the test/quiz. No additional time will be granted to complete the quiz or test.

STUDENT SUCCESS: To successfully complete this course, the student will need to:

1. Complete assignment as indicated on the schedule.
2. Read weekly topic objectives before class; study for tests.
3. Ask the instructor for help as soon as you realize you are having difficulty.
4. Take notes during class and place a question by anything you do not understand.

COURSE REQUIREMENTS:

Lab/Clinic: Students are only allowed in lab or clinic with direct faculty/staff supervision. Students participating in clinical activities are to be in clinic attire and utilizing safety/infection control protocols at all times. Friday’s are assigned as open lab days.

Professional Policy: Students are expected to participate fully in all lab and clinical activities and to model professional behavior at all times. Students are considered mature enough to seek faculty assistance and to monitor their own progress in meeting...
course requirements. Students are expected to follow the handbook and syllabus. Students will be given a communication slip for each infraction related to professionalism. Each form given to the student will result in a ten (10) point deduction for each infraction from the professionalism grade. All students start with a grade of 100.

Examples of infractions on professionalism include but are not limited to:

- Dress code violation
- Violation of laboratory rules
- Violating of safety rules
- Not wearing radiation monitoring badge
- Tardiness
- Head on desk and/or nonresponsive as in sleeping. The student will also be asked to leave the classroom and not return until the next class meeting.
- Not bringing required materials to class
- Failure to perform mandatory sterilization duties as assigned
- Using clinic printer without instructor approval
- Cell phone not turned in (basket) at the beginning of class; will be confiscated if and returned to student at the end of class.
- Use of electronic devices (i.e. tablets) for reasons other than accessing the electronic textbook assigned for DHYG 1304.
- Studying for other classes during class.
- Chewing gum in class/lab
- Use of hats

For further information on professional behavior refer to program handbook.

Eagleonline Canvas:
Eagleonline Canvas will be used throughout the semester as a supplement to enhance the course experience. Grades for all work submitted and handouts including power points for each lecture will be uploaded onto Canvas.

Lecture exams may take place at the Computer Center, located on the first floor, and administered via Canvas. Additional time for test taking will not be given to any student arriving late to the Computer Center. In addition, any student arriving late will receive a three (3) point deduction on the test.

Each student must wait quietly outside the Computer Center, on a test date, until directed to enter by the instructor.

Total grade reflected in Eagleonline Canvas is not the official course grade. Official course grades are maintained, by the lead instructor, on a grade sheet separate from Canvas.

Student Partner:
Students are required to be “patients” to a student partner in this course. Student partners will obtain a Full Mouth Series radiograph on their “patient” and submit it as a Daily Grade. Students not able to participate as a “patient” will need to provide a public patient for themselves in order to fulfill the Full Mouth Series daily grade requirement.

Each student serving as a “patient” must schedule an appointment in our clinic for screening by the supervising dentist. The screening must be scheduled during the month of September, no exceptions.
A student bringing in a public patient must schedule the patient for screening by a supervising dentist from our clinic, located in room #562. Screenings can only be done during normal clinic hours and must be scheduled during the month of September.

PLAGIARISM POLICY:
Plagiarism is defined as “to steal and pass off (the ideas or words of another) as one’s own and to use (another’s production) without crediting the source.” This includes materials taken from other individuals and the internet.

All sources must be cited in your APA style research paper. Any direct quote (word for word) must be placed within quotation marks and cited in APA format. Student in violation of plagiarism policy will receive in a zero “0” for the assignment and an “F” in the course. All assignments will be run through a plagiarism website checker.

CHEATING:
Lab assignments will be given to students throughout the semester; daily grades, quizzes, and a final, which require submission of radiographic exams. Students are not allowed to do retakes on a daily grade, quiz, or final assignment. Retakes include acquired images using additional phosphorus plates not assigned to students or replacing digital images without approval by the instructor. Retakes will be considered cheating and the student will receive a written warning along with a grade of ‘0’ for the assignment in question.

See the Dental Hygiene Student Handbook under “Scholastic Dishonesty” for additional information regarding cheating.

ATTENDANCE POLICY:
Arrangements must be made that do not conflict with class times for doctor’s appointments, sick family members, and transportation needs. In cases of emergency, illness, or absence the student must contact the lead instructor/program director prior to class or lab within the first hour of class start time by sending the lead instructor an email. Messages sent through a third party will not be accepted.

Notification of an expected absence does not guarantee and excused absence. An excused absence requires documentation. For example, the student must provide an official signed doctor’s excuse for any illness or a formal document from a court for jury duty or a required court appearance. The documentation must be provided on the first day the student returns to class. If a student fails to contact the instructor or director, the student will be given a communication notice along with point deductions from the professionalism grade.

Any student who is absent for more than 25% of a class/lab session will receive an unexcused absence. The student will receive a communication report for each absence.

Each unexcused absence will result in a one (1) point deduction from the final course grade.

Per HCCS attendance policy you may be dropped from a course after accumulating absences in excess of 12.5 percent of the total hours of instruction. Any student accumulating absences in excess of 8 hrs. in lab or 4 hrs. in lecture for a combined maximum total of 12 hrs. of instruction may be dropped from this course.

Note: Any absence in lab or lecture can negatively affect student learning/comprehension of material covered during the absence and may consequently result in failure of the course.
**TARDINESS:**
Four (4) tardies will equal one unexcused absence resulting in a one point deduction from the final course grade. You must be physically present in class and are considered tardy five (5) minutes after the start of the class/lab. The official time will be determined based on the instructor’s cell phone. The student must contact the lead instructor by email or text if a tardy is expected. Messages sent through a third party will not be accepted. The student will receive a communication report for each tardy along with points deducted from their professionalism grade.

See Dental Hygiene Handbook for additional stipulations regarding absences and tardiness.

**ELECTRONIC COMMUNICATION:** E-mail from the instructor is the official mode of communication. Students are required to check school email on a daily basis. Important information is disseminated through student emails. Students are held accountable for this information and any necessary responses.

You are required to set your Eagleonline Canvas notifications to be sent to your email.

**ELECTRONIC DEVICES:** Phones, laptops, iPods, etc. should be silent at all times. They are not to be used during class/lab session unless given specific permission by instructor. All cell phones will be collected at the beginning of each lecture/lab class and will be returned to the student at the end of class.

**MAKE-UP POLICY:** The student will not be able to make up exams, quizzes, daily grade activities, or assignments without a doctor’s note and/or at the instructor’s discretion. The student will receive a “0” for that exam, quiz, daily grade, assignment, etc. Any make-up work must be taken the next day the student is in attendance or a day chosen by the instructor and will be administered at a time scheduled with the instructor. There is no make-up time for missed laboratory sessions. Students are encouraged to practice their skills during non-patient clinic time and outside of normal scheduled classes. Students are not allowed to practice skills on classmates at any time.

**HCC Grading Scale**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points per semester hour</th>
</tr>
</thead>
<tbody>
<tr>
<td>A = 100 – 90</td>
<td>4</td>
</tr>
<tr>
<td>B = 89 – 80</td>
<td>3</td>
</tr>
<tr>
<td>C = 79 – 70</td>
<td>2</td>
</tr>
<tr>
<td>D = 69 – 60</td>
<td>1</td>
</tr>
<tr>
<td>F = 59 and below</td>
<td>0</td>
</tr>
<tr>
<td>IP (In Progress)</td>
<td>0</td>
</tr>
<tr>
<td>W (Withdrawn)</td>
<td>0</td>
</tr>
<tr>
<td>I (Incomplete)</td>
<td>0</td>
</tr>
<tr>
<td>AUD (Audit)</td>
<td>0</td>
</tr>
</tbody>
</table>

IP (In Progress) is given only in certain developmental courses. The student must re-enroll to receive credit. COM (Completed) is given in non-credit and continuing education courses. To compute grade point average (GPA), divide the total grade points by the total number of semester hours attempted. The grades “IP”, “COM”, and “I” do not affect GPA.

See “Health Science Program/Discipline Requirements” for grading scale.
Instructor Grading

**DENTAL HYGIENE PROGRAM GRADING SCALE:** Grading for course material will follow the scale below

- **A** 93 – 100
- **B** 83 – 92
- **C** 75 – 82
- **F** 0 – 74 and below

**GRADING FOR DENTAL RADIOLOGY LECTURE:***

- 38% Exams
- 30% Quizzes
- 2% Professionalism
- 30% Comprehensive Final
- 100%

**GRADING FOR DENTAL RADIOLOGY LAB:***

<table>
<thead>
<tr>
<th>Quizzes</th>
<th>Daily Grades</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interpretation 1</td>
<td>Bitewing Set 1 (4 HBW/4VBW – PSP)</td>
</tr>
<tr>
<td>Interpretation 2</td>
<td>Bitewing Set 2 (4 HBW/4VBW – Schick)</td>
</tr>
<tr>
<td>FMS with PSP</td>
<td>Anterior &amp; Posterior Periapical Set 1(PSP)</td>
</tr>
<tr>
<td>FMS with Schick (Dexter)</td>
<td>Anterior &amp; Posterior Periapical Set 2 (Schick)</td>
</tr>
<tr>
<td>Panoramic/BW</td>
<td>FMS Set 1(Schick on a patient)</td>
</tr>
</tbody>
</table>

**Assignments**
- Lab Manual Worksheets
- Practice Radiographs

- 35% Quizzes
- 30% Daily Grades
- 3% Assignments
- 2% Professionalism
- 30% Final Exam
- 100%

*1. Students are required to pass both lecture and lab independently with a grade of 75% or above.
2. A grade of “F” (74% or below) in the lecture or lab will result in an “F” for the entire course, and there will be no averaging of the two.
3. If both lecture and lab are passed with at least a grade of 75% independently, they will be averaged together for a final course average.
4. A final averaged lecture and lab course grade below a “C” (75%) will result in dismissal from the program.

*If you are having trouble with this course, it is your responsibility to contact the professor immediately and arrange for tutoring or other assistance.

Any student who faces challenges securing their food or housing and believes this may affect their performance in the course is urged to contact the Dean of Students for support. Furthermore, please notify the professor if you are comfortable in doing so.*
HCC Policy Statement: **ADA STATEMENT:**

“Any student with a documented disability (e.g., physical, learning, psychiatric, vision, hearing, etc.) who needs to arrange reasonable accommodations must contact the disability Services Office at the respective college at the beginning of each semester. Faculties are authorized to provide only the accommodations requested by the disability Support Services Office. The information in this publication will be made available in large print, taped, or computer-based format upon request.

HCC strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please meet with a campus Abilities Counselor as soon as possible in order to establish reasonable accommodations. Reasonable accommodations are established through an interactive process between you, your instructor(s) and Ability Services. It is the policy and practice of HCC to create inclusive and accessible learning environments consistent with federal and state law.”

The ADA Advisor for Coleman College is located on the 1st floor.

For more information, please go to [http://www.hccs.edu/district/students/disability-services/](http://www.hccs.edu/district/students/disability-services/)

**ACADEMIC HONESTY STATEMENT:**

“Students are responsible for conducting themselves with honor and integrity in fulfilling course requirements. Penalties and/or disciplinary proceedings may be initiated by College System officials against a student accused of scholastic dishonesty.”

Clinical competencies/requirements are considered a ‘test’ in the clinical setting. Therefore, no communication with another student during a competency/requirement is allowed as this is considered scholastic dishonesty. See the HCCS Dental Hygiene Student Handbook and the HCCS Student Handbook for more information.

**NOTICE:**

“Students who repeat a course three or more times face significant tuition/fee increases at HCC and other Texas public colleges and universities. Please ask your instructor/advisor about opportunities for tutoring or other assistance prior to considering course withdrawal or if you are not receiving passing grades.”

**SOCIAL NETWORKING AND STUDENTS IN HEALTH CARE PROGRAMS:**

Students in health care programs must adhere to federal laws regarding HIPAA protected information and college policies regarding protection of privacy of the student’s patients. Students may not post any photos, videos, patient information, or any other data regarding patient’s or affiliations on Social Networking sites, including but not limited to Facebook, MySpace, Twitter, YouTube.

**DRUG-FREE SCHOOL**

HCC is fully dedicated to a drug-free environment for all students and employees at all college locations. The unlawful manufacture, distribution, possession, sale, offer to sell, purchase and/or use of controlled substances or alcohol on campuses, at teaching sites, in vehicles, and on other property owned, leased, or under the control of HCC and at all on-campus and off-campus, school sponsored activities is prohibited. Controlled substances are those defined in Schedules I through V of Section 202 of the Texas Health and Safety Codes 481.001 et. seq. the Texas Controlled Substances Act. Controlled substances include, but are not limited to, such substances as marijuana,
hashish, heroin, cocaine, LSD, PCP, methamphetamine, anabolic steroids, human-growth hormones, and fentanyl. A student who uses a drug authorized by a licensed physician through a prescription specifically for that student’s use shall not be considered to have violated this rule. As a condition of enrollment, all students are required to follow HCC policy and regulations concerning alcohol and other drugs. College counselors are available to students for consultation on alcohol and other drug issues. Counselors will assist students personally or act as a referral source when necessary. All student-counselor relationships will be on a confidential basis to the extent permitted by law.

VIOLATIONS
Students who violate the policy shall be subject to disciplinary proceedings according to the Student Discipline and Conduct Code. Disciplinary action may include referral to drug and alcohol counseling or rehabilitation programs or student assistance programs, suspension, expulsion, and referral to appropriate law enforcement officials for prosecution.

EGLS³ - EVALUATION FOR GREATER LEARNING
Student Survey System

At Houston Community College, professors believe that thoughtful student feedback is necessary to improve teaching and learning. During a designated time, you will be asked to answer a short online survey or research-based questions related to instruction. The anonymous results of the survey will be made available to your professors and division chairs for continual improvement of instruction. Look for the EGLS³ as part of the Houston Community College Student System online near the end of the term.


Houston Community College is committed to cultivating an environment free from inappropriate conduct of a sexual or gender-based nature including sex discrimination, sexual assault, sexual harassment, and sexual violence. Sex discrimination includes all forms of sexual and gender-based misconduct and violates an individual’s fundamental rights and personal dignity. Title IX prohibits discrimination on the basis of sex—including pregnancy and parental status—in educational programs and activities. If you require an accommodation due to pregnancy please contact an Abilities Services Counselor. The Director of EEO/Compliance is designated as the Title IX Coordinator and Section 504 Coordinator. All inquiries concerning HCC policies, compliance with applicable laws, statutes, and regulations (such as Title VI, Title IX, and Section 504), and complaints may be directed to:

Office of Institutional Equity (OIE)
713-718-8271

CAMPUS CARRY

“At HCC the safety of our students, staff, and faculty is our first priority. As of August 1, 2017, Houston Community College is subject to the Campus Carry Law (SB11 2015). For more information, visit the HCC Campus Carry web page at http://www.hccs.edu/district/departments/police/campus-carry/.”

Access Student Services Policies on their Web
http://hccs.edu/student-rights

DHYG/2017
Distance Education and/or Continuing Education Policies

Access DE Policies on their Web site:  
http://de.hccs.edu/Distance_Ed/DE_Home/faculty_resources/PDFs/DE_Syllabus.pdf

Access CE Policies on their Web site:  
http://hccs.edu/CE-student-guidelines
Syllabus Agreement

I have received a copy of the syllabus and understand its implications and will abide by it. I have had the opportunity to ask questions and ask for clarification. I understand that if I fail to adhere to these requirements I will be advised by my instructor the disciplinary actions that will be taken against me. I understand that the course instructor has the right to make alterations to the class and exam schedule as needed.

Printed Name of Student:_______________________________________________________

Signature of Student: _________________________________________ Date_____________

Instructor’s Signature: _________________________________________ Date_____________
<table>
<thead>
<tr>
<th>Week and Date</th>
<th>Lecture</th>
<th>Homework Assignment</th>
</tr>
</thead>
</table>
| 1 September 14th | Ch. 1 – Dental Radiography: Historical Perspective and Future Trends  
Ch. 21 – Recognizing Normal Radiographic Anatomy – Intraoral Radiographs  
Ch. 15 – The Bitewing Examination | Read Chapters 8,13  
Study for Test Chapters 1,3,9,12,15,21 |
| 2 September 21st | **Exam 1 (Chapters 1, 3, 9, 12, 15, 21)**  
Ch. 8 – Digital Radiography and Image Acquisition  
Ch. 13 – The Periapical Examination – Paralleling Technique | Read Chapters 18,20,29 |
| 3 September 28th | Ch. 18 – Identifying and Correcting Undiagnostic Radiographs  
Ch. 20 – Image Orientation and Introduction to Interpretation  
Ch. 29 – Radiographic Techniques for Patients with Special Needs | Read Chapters 23,24,25  
Study for Test Chapters 8, 13, 18, 20, 29 |
| 4 October 5th | **Exam 2 (Chapters 8, 13, 18, 20, 29)**  
Ch. 23 – Radiographic Appearance of Dental Materials and Foreign Objects  
Ch. 24 – The Use of Radiographs in the Detection of Dental Caries  
Ch. 25 – The Use of Radiographs in the Evaluation of Periodontal Disease | Read Chapters 26,2,6 |
| 5 October 12th | Ch. 26 – Describing Radiographic Anomalies, Lesions, and Opportunistic Screening  
Ch. 2 – Characteristics and Measurement of Radiation  
Ch. 6 – Radiation Protections | Read Chapters 4,5  
Study for Test Chapters 2,6,23,24,25,26 |
| 6 October 19th | **Exam 3 (2, 6, 23, 24, 25, 26)**  
Ch. 4 – Factors Affecting Radiographic Quality  
Ch. 5 – Effects of Radiation Exposure | Read Chapters 10,11,14 |
| 7 October 26th | Ch. 10 – Legal and Ethical Responsibilities  
Ch. 11 – Patient Relations and Education  
Ch. 14 – The Periapical Examination – Bisecting Technique | Read Chapters 17,22 |
| 8 November 2nd | Ch. 17 – The Panoramic Examination  
Ch. 22 – Recognizing Normal Radiographic Anatomy – Panoramic Radiographs | Read Chapters 16,19  
Study for Test Chapters 4,5,10,11,14 |
| 9 November 9th | **Exam 4 (4, 5, 10, 11, 14)**  
Ch. 16 – The Occlusal Examination  
Ch. 19 – Quality Control and Environmental Safety in Dental Radiography | Read Chapters 27,28 |
| 10 November 16th | Ch. 27 – Pediatric Radiographic Techniques  
Ch. 28 – Radiographic Techniques for Patients with Special Needs | Read Chapter 7  
Study for Test Chapters 16,17,19,22,27,28 |
| 11 November 23rd | **THANKSGIVING HOLIDAY** | |
| 12 November 30th | **Exam 5 (16, 17, 19, 22, 27, 28)**  
Ch. 7 – Dental X-ray Film and Processing Methods | Read Chapters 30,31 |
| 13 December 7th | Ch. 30 – Supplemental and Extraoral Radiographic Techniques  
Ch. 31 – Three-dimensional Imaging | Study for Final |
| 14 December 14th | **FINAL COMPREHENSIVE EXAM** | |

This Lecture Calendar is subject to change with verbal or written communication to students.
<table>
<thead>
<tr>
<th>Week of and Date</th>
<th>Lab Activities</th>
</tr>
</thead>
</table>
| 1 September 11th | (Classroom 1-3 pm) Syllabus, Safety Operations Manual, other Handouts  
|                  | Ch. 3 - The Dental X-ray Machine: Components and Function  
|                  | Ch. 9 - Infection Control  
|                  | Ch 12 - Introduction to Radiographic Examinations  
|                  | (Lab 3-5 pm) Clinic Tour/ DXTTR/ Infection Control (Prior, During, and After)  
|                  | **Lab Exercise 8:** turn in pg. 213, 214 |
| 2 September 18th | **Assignment:** 4 VBW, 4 HBW with XCP and PSPs; includes mounting, landmark id, and evaluation  
|                  | **Lab Exercise #2:** turn in p. 51-52 |
| 3 September 25th | **Assignment:** 6 anterior PAs and 8 posterior PAs with XCP and PSPs; includes mounting, landmark id, and evaluation  
|                  | **Daily Grade:** 4 VBW, 4 HBW with XCP and PSPs  
|                  | **Lab Exercise #4:** turn in pp. 103-104 |
| 4 October 2nd    | **Assignment:** FMS with XCP and PSPs; includes mounting, landmark id, and evaluation  
|                  | **Daily Grade:** 6 anterior PAs and 8 posterior PAs with XCP and PSPs  
|                  | **Lab Exercise #6:** turn in pp. 159-160 |
| 5 October 9th    | **Quiz:** FMS with XCP and PSPs  
|                  | **Assignment:** 4 VBW, 4 HBW with XCP and Schick sensor; includes mounting, landmark id, and evaluation |
| 6 October 16th   | **Assignment:** 6 anterior PAs and 8 posterior PAs with XCP and PSPs; includes mounting, landmark id, and evaluation  
|                  | **Daily Grade:** 4 VBW, 4 HBW with XCP and Schick sensor |
| 7 October 23rd   | **Assignment:** FMS with XCP and Schick sensor; includes mounting, landmark id, and evaluation  
|                  | **Daily Grade:** 6 anterior PAs and 8 posterior PAs with XCP and Schick sensor |
| 8 October 30th   | **Interpretation Quiz #1:** Landmarks  
|                  | **Assignment:** Bisecting Technique with Snap-A-Ray and Stabe, right or left side of the mouth; includes mounting, landmark id, and evaluation  
|                  | **Lab Exercise #8:** turn in pp. 137-138  
|                  | **Practice:** PSP/Schick |
| 9 November 6th   | Panoramic radiography demonstration with DXTTR/Student partner  
|                  | Occlusal examination, Nomad  
|                  | **Daily Grade:** first ½ of the class FMS on student partner with XCP and PSP  
|                  | **Lab Exercise #12:** turn in pp. 297-306 |
| 10 November 13th | Panoramic radiography demonstration with DXTTR/Student partner  
|                  | Occlusal examination, Nomad  
|                  | **Daily Grade:** second ½ of the class FMS on student partner with XCP and PSP  
|                  | **Lab Exercise #10:** turn in pp. 251-252 |
| 11 November 20th | **Quiz:** ½ of the class FMS on DXTTR with XCP and digital sensor  
|                  | **Quiz:** ½ of the class Panoramic and Pano-BW |
| 12 November 27th | **Quiz:** ½ of the class FMS on DXTTR with XCP and digital sensor  
|                  | **Quiz:** ½ of the class Panoramic and Pano-BW |
| 13 December 4th  | **Interpretation Quiz #2:** Materials, Errors, and Conditions  
|                  | **Practice:** for Final Exam |
| 14 December 11th | **FINAL EXAM ON DXTTR** |

This Lab Calendar is subject to change with verbal or written communication to students.