DA 155, Dental Radiography

Semester & Year: Fall 2013
Course ID and Section Number: E4306 (034306)  
E4307 (034307)
Number of Credits/Units: 3
Day/Time: Lecture - Tuesdays – 11:35 am to 12:35 pm in AT 115  
Lab Sessions - Tuesdays – 8:00 am to 11:10 am in AT 112  
Tuesday – 1:30 pm to 4:40 pm in AT 112
Location:
Instructor’s Name: Hillary Reed
Contact Information: Office location and hours: AT 101, Tuesdays 9:00 am to 11:00 am  
Phone: 476-4253  
Email: hillary-reed@redwoods.edu

Course Description:
A foundation in radiographic principles. Concepts, skills, techniques are applied. Topics include radiation history, safety/protection, equipment, exposure techniques, film development, and storage. Errors in performance are interpreted and critiqued. Laboratory and clinical experience occur under direct supervision and guidance of faculty.

Student Learning Outcomes:
1. Describe the uses and risk/benefit ratio of dental radiography.
2. Name the highlights in the history of dental radiography.
3. Explain the process of ionization and the properties of x-radiation.
4. Describe the effect of the kilovoltage and milliamperage on the quality of the x-ray beam.
5. Discuss the effects of radiation exposure on the human body and measures used in protecting patients and operators from exposure of excess radiation.
6. Describe the types of laws and regulations affecting the practicing of dental radiography, including informed consent and identification of who "owns" the dental radiographs.
7. Explain how radiographs are produced.
8. Identify the devices and machinery, label the components, and explain the use of radiographic equipment.
9. Identify the chemicals, precautions, and safety concerns involved with dental radiography processing techniques and the dark room.
10. Identify the dental supplies, holders, and apparatuses used intraorally.
11. Name the two primary types of radiographic projections used in intraoral technique and describe the difference.
12. Explain the basic principles and rules for angulation techniques.
13. Describe correct ways to place, process, and mount dental apparatuses to avoid errors.
14. Describe techniques for managing patients when exposing radiographs.
Special accommodations:
College of the Redwoods complies with the Americans with Disabilities Act in making reasonable accommodations for qualified students with disabilities. Please present your written accommodation request at least one week before the first test so that necessary arrangements can be made. No last-minute arrangements or post-test adjustments will be made. If you have a disability or believe you might benefit from disability related services and may need accommodations, please see me or contact Disabled Students Programs and Services. Students may make requests for alternative media by contacting DSPS.

Academic Misconduct:
Cheating, plagiarism, collusion, abuse of resource materials, computer misuse, fabrication or falsification, multiple submissions, complicity in academic misconduct, and/or bearing false witness will not be tolerated. Violations will be dealt with according to the procedures and sanctions proscribed by the College of the Redwoods. Students caught plagiarizing or cheating on exams will receive an “F” in the course.

The student code of conduct is available on the College of the Redwoods website at: http://redwoods.edu/District/Board/New/Chapter5/AP%205500%20Conduct%20Code%20final%2002-07-2012.pdf

Additional information about the rights and responsibilities of students, Board policies, and administrative procedures is located in the college catalog and on the College of the Redwoods homepage.

College of the Redwoods is committed to equal opportunity in employment, admission to the college, and in the conduct of all of its programs and activities.
College of the Redwoods  
Dental Assisting Program  
Fall Semester 2013

**Course Title:** DA155-Dental Radiography

**Section Number:**
- E4306 (034306) Tuesday Morning Lab
- E4307 (034307) Tuesday Afternoon Lab

**Course Credit:** 3 Units- Lecture and Lab

**Class Meetings:**
- Lecture - Tuesdays – 11:30 pm to 12:35 pm in AT 115
- Labs – Tuesdays – 8:00 am to 11:10 am
- Tuesdays – 1:30 pm to 4:40 pm

**Instructor Details:** Hillary Reed, RDAEF, CDA, COA, CDPMA, CPFDA
- Office: AT102
- Office Hours: Tuesdays from 9:00 – 11:00am
- Phone: 476-4253
- E-mail: hillary-reed@redwoods.edu

Stephanie Santsche-Powell, RDH, RDA, CDA
- Office: AT101
- Office Hours: By appointment only
- Phone: 476-4250

**Academic Standards and Policies:**
Students are expected to adhere to the program policies and guidelines as outlined in the College of the Redwoods Program Handbook for Dental Assisting Students, as well as all campus policies and regulations as detailed in the College of the Redwoods 2013/2014 Catalog.

**Co-Requisites Courses (Fulltime Students):**
DA 153, DA154, DA156

**Course Description:**
A foundation in radiographic principles. Concepts, skills, techniques are applied. Topics include radiation history, safety/protection, equipment, exposure techniques, film development, and storage. Errors in performance are interpreted and critiqued. Laboratory and clinical experience occur under direct supervision and guidance of faculty.

**Required Texts:**
- Torres and Ehrlich, Modern Dental Assisting, 10th Edition
- Learning Resource Center (Library) and reference material
**Teaching and Learning Methods:**
Connecting textbook standards to practical application is principle in developing as a dental assistant. Knowledge, proficiency and confidence are all critical when performing in the workforce. To be successful, students are to have read and prepared course materials prior to the beginning of class. Lecturing is primarily used as a tool of clarification, followed by a wide array of practical activities, assignments, and applications.

**Classroom Management Policy:**
Staying on task, actively listening, and following directions is important for your success. Utilizing breaks wisely, keeping organized, abiding by the rules, and cleaning up efficiently is expected in all classroom settings. Working as a team in the classroom facilitates teamwork in the dental field. Modeling good manners, common courtesy, and respectful behavior is important as a professional.

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**Equal Opportunity:**
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Assignment Policy:
To demonstrate competency of course outcomes, students will accomplish a variety of assignments. Written directions and rubrics are provided for all assignments. Assignments must be submitted at the beginning of class on the specified due date, any that are e-mailed or submitted after the class period will be considered late and will receive a grade penalty based on the following chart:

<table>
<thead>
<tr>
<th>Late Assignment Timeline</th>
<th>Penalty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 24 hours late</td>
<td>85% of original value</td>
</tr>
<tr>
<td>Up to 48 hours late</td>
<td>75% of original value</td>
</tr>
<tr>
<td>Up to 72 hours late</td>
<td>65% of original value</td>
</tr>
<tr>
<td>Past 72 hours late</td>
<td>No Credit</td>
</tr>
</tbody>
</table>

Exam Policy:
Exams and quizzes are administered at the beginning of class. Tardy students will not be given extra time to complete exams or quizzes. Additionally no make-up exams or quizzes will be administered. Only scantrons and written answers will be returned to the student, multiple choice questions will not be distributed.

Extra-Credit Policy:
No extra-credit will be offered.

Attendance Policy:
Students are expected to attend all classes; absences are not excused in the college setting. Attendance will be taken at the beginning of each class and students are expected to attend the entire class session. Students missing class are responsible for what transpired in class. It is the student’s responsibility to contact an instructor or classmate to determine what was missed.

Two absences per course require that the student submit a Petition to Continue. See the Program Handbook for more detail.

Tardy Policy:
Students are expected to arrive to class on time and prepared to begin. Arriving late to class or leaving before class is dismissed is distracting to the educational process and will result in the following deletion of points from the final class grade.

<table>
<thead>
<tr>
<th>Violation</th>
<th>Penalty</th>
</tr>
</thead>
<tbody>
<tr>
<td>First tardy</td>
<td>Verbal warning</td>
</tr>
<tr>
<td>Second tardy</td>
<td>Deduction of 25 points from final grade</td>
</tr>
<tr>
<td>Each additional tardy</td>
<td>Deductions increased in increments of 25 points (i.e. 3rd tardy -50 points, 4th tardy-75 points)</td>
</tr>
<tr>
<td>Leaving before class is dismissed</td>
<td>Deduction of 25 points</td>
</tr>
<tr>
<td>Each additional incidence of leaving before class is dismissed</td>
<td>Deductions increased in increments of 25 points (i.e. 3rd incident -50 pts, 4th incident-75 pts, 5th incident-100 pts, etc)</td>
</tr>
</tbody>
</table>
**Cell Phone/Electronic Device Policy:**
Students are expected to keep cell phones or other electronic devices turned completely off and out of sight in all classes, labs, and clinical sessions. Any class disruption due to cell phones or electronic device sounds or vibrations will result in the following deletion of points from the final class grade. Additionally, a Written Warning, Contract, or Conference Summary will also be issued at time of the violation as outlined in the Program Handbook.

<table>
<thead>
<tr>
<th>Violation</th>
<th>Penalty</th>
</tr>
</thead>
<tbody>
<tr>
<td>First overall classroom violation</td>
<td>Warning to classroom</td>
</tr>
<tr>
<td>Second violation</td>
<td>Deduction of 50 points</td>
</tr>
<tr>
<td>Each additional incident</td>
<td>Deductions increased in increments of 50 points (i.e. 3rd incident – 100 points, 4th incident 150 points)</td>
</tr>
<tr>
<td>Disruption or use of cell phone or electronic device during written and/or practical testing</td>
<td>Zero points given for the test grade, in addition to deduction of penalty points on the final grade</td>
</tr>
</tbody>
</table>

**Dress Code and Personal Hygiene Standards:**
Students are expected to follow the Dress Code and Personal Hygiene Standards at all times. A full detailed list is provided in the Program Handbook.

**Student/Peer Practice Policy:**
All students are required to participate in laboratory activities where peers perform common dental assisting procedures during laboratory classes. No student is exempt from this requirement.

**Infection Control and Safety Policy:**
Students must follow infection control guidelines, chemical handling protocol, and safety rules at all times. Failing to do so will result in automatic dismissal from lab and a Contract and/or Conference Summary will be issued immediately depending on the severity of the violation.

- Infection control protocol and safety precautions must be followed at all times.
- Equipment must not be used prior to being shown proper technique and safety precautions. Students must *not* operate equipment without an instructor present.
- Food or drinks (including water) are not allowed in the lab or clinical areas.
- Personal Protective Equipment (PPE) must worn at appropriate times.
- Work areas, lockers, and drawers are to be kept clean and orderly.
- Injuries must be reported to the instructor immediately. First aid kit and oxygen are available in the classroom.
Course Components:
- Radiation Basics
- Equipment, Film, and Processing Basics
- Dental Radiographer Basics
- Technique Basics

Course Learning Outcomes:
1. Describe the uses and risk/benefit ratio of dental radiography.
2. Name the highlights in the history of dental radiography.
3. Explain the process of ionization and the properties of x-radiation.
4. Describe the effect of the kilovoltage and milliamperage on the quality of the x-ray beam.
5. Discuss the effects of radiation exposure on the human body and measures used in protecting patients and operators from exposure of excess radiation.
6. Describe the types of laws and regulations affecting the practicing of dental radiography, including informed consent and identification of who "owns" the dental radiographs.
7. Explain how radiographs are produced.
8. Identify the devices and machinery, label the components, and explain the use of radiographic equipment.
9. Identify the chemicals, precautions, and safety concerns involved with dental radiography processing techniques and the dark room.
10. Identify the dental supplies, holders, and apparatuses used intraorally.
11. Name the two primary types of radiographic projections used in intraoral technique and describe the difference.
12. Explain the basic principles and rules for angulation techniques.
13. Describe correct ways to place, process, and mount dental apparatuses to avoid errors.
14. Describe techniques for managing patients when exposing radiographs.
Course Grade Determination Break Down:

<table>
<thead>
<tr>
<th>Course Requirements</th>
<th>Points Possible</th>
<th>Points Earned</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 Quizzes (40 points each)</td>
<td>200</td>
<td></td>
</tr>
<tr>
<td>2 Written Exams (150 points each)</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td>1 Written Final Exam</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>8 Overall Daily Lab Performance (50 points each)</td>
<td>400</td>
<td></td>
</tr>
<tr>
<td>1 Infection Control Exam</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>1 Equipment Identification Exam</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>5 Skills Exams (100 points each)</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td>1 Practical Exam</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td><strong>Total Points Possible</strong></td>
<td><strong>2500</strong></td>
<td></td>
</tr>
</tbody>
</table>

To calculate your grade add up all points received on assignments and exams, subtract any points for Written Warnings, Contracts, or Conference Summaries issued, divide by total points possible (2500) to determine the percentage (%). Use the chart below to determine your letter grade.

Course Grading Scale:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage %</th>
<th>GPA</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>96-100</td>
<td>4.0</td>
<td>Excellent academic work and/or clinical training</td>
</tr>
<tr>
<td>A-</td>
<td>90-95</td>
<td>3.7</td>
<td>Excellent academic work and/or clinical training</td>
</tr>
<tr>
<td>B+</td>
<td>87-89</td>
<td>3.3</td>
<td>Good academic work and/or clinical training</td>
</tr>
<tr>
<td>B</td>
<td>84-86</td>
<td>3.0</td>
<td>Good academic work and/or clinical training</td>
</tr>
<tr>
<td>B-</td>
<td>81-83</td>
<td>2.7</td>
<td>Good academic work and/or clinical training</td>
</tr>
<tr>
<td>C+</td>
<td>78-80</td>
<td>2.3</td>
<td>Adequate academic work and/or clinical training</td>
</tr>
<tr>
<td>C</td>
<td>75-77</td>
<td>2.0</td>
<td>Marginal academic work and/or clinical training</td>
</tr>
<tr>
<td>D</td>
<td>65-74</td>
<td>1.0</td>
<td>No progression, unacceptable academic work and/or clinical training</td>
</tr>
<tr>
<td>F</td>
<td>&lt;65</td>
<td>0.0</td>
<td>No progression, unacceptable academic work and/or clinical training</td>
</tr>
<tr>
<td>W</td>
<td>N/A</td>
<td></td>
<td>Official Withdrawal</td>
</tr>
</tbody>
</table>

A grade of C (75%) or better is required in all courses for successful course progression and program completion. This is a Health Occupations, California State Dental Board and Commission on Dental Accreditation requirement.
Week 1 - Tuesday, August 27 (Lecture)
Textbook reading assignment in preparation for lecture class:
  Chapter 38 Radiographic Equipment (602-605)
  Chapter 39 Radiographic Imaging (624-625)
  Chapter 40 Legal Issues, Quality Assurance, and Infection Prevention

Week 1 - Tuesday, August 27 (Lab)
Textbook Procedure Lab Competencies: 40-1, 41-1, 41-2

Week 2 - Tuesday, September 3 (Lecture)
Textbook reading assignment in preparation for lecture class:
  Chapter 38 Radiation Safety (611-615)
  Chapter 40 Legal Issues, Quality Assurance, and Infection Prevention
  Chapter 41 Intraoral Imaging (Mounting 678)

Week 2 - Tuesday, September 3 (Lab)
Textbook Procedure Lab Competencies: 40-1, 41-2, 41-7

Week 3 - Tuesday, September 10 (Lecture)
Quiz #1 (CH. 38, 40 Infection Prevention)
Textbook reading assignment in preparation for lecture class:
  Chapter 38 Foundations of Radiography (597-611)
  Chapter 39 Processing Radiographs (631-636)
  Chapter 41 Intraoral Imaging (663-673)

Week 3 - Tuesday, September 10 (Lab)
Textbook Procedure Lab Competencies: 39-3, 40-2, 40-3, 41-2, 41-3
Infection Prevention Practical Exam

Week 4 - Tuesday, September 17 (Lecture)
Textbook reading assignment in preparation for lecture class:
  Chapter 39 Processing Radiographs (637-640)
  Chapter 41 Intraoral Imaging

Week 4 - Tuesday, September 17 (Lab)
Textbook Procedure Lab Competencies: 41-3, 41-5, 41-7
Equipment Identification Exam
**Week 5 - Tuesday, September 24 (Lecture)**
Quiz #2 (CH. 41 - Mounting, CH. 39 - Processing)
*Textbook reading assignment in preparation for lecture class:*
  - Chapter 39 Dental Film (624-630)
  - Chapter 41 Intraoral Imaging

**Week 5 - Tuesday, September 24 (Lab)**
*Textbook Procedure Lab Competencies: 41-3, 41-5, 41-7*

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**Week 6 - Tuesday, October 1 (Lecture)**
Exam #1 (CH. 38, 39, 40, 41)
*Textbook reading assignment in preparation for lecture class:*
  - Chapter 41 Intraoral Imaging

**Week 6 - Tuesday, October 1 (Lab)**
*Textbook Procedure Lab Competencies: 41-3, 41-5, 41-7*
Skills Exam #1- Bitewing Exposure

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**Week 7 - Tuesday, October 8 (Lecture)**
*Textbook reading assignment in preparation for lecture class:*
  - Chapter 41 Intraoral Imaging (Anatomical landmarks)

**Week 7 - Tuesday, October 8 (Lab)**
*Textbook Procedure Lab Competencies: 41-3, 41-5, 41-7*
Skills Exam #2- Periapical Exposure

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**Week 8 - Tuesday, October 15 (Lecture)**
*Textbook reading assignment in preparation for lecture class:*
  - Chapter 39 Digital Imaging (618-623)
  - Chapter 41 Intraoral Imaging

**Week 8 - Tuesday, October 15 (Lab)**
*Textbook Procedure Lab Competencies: 40-4, 41-3, 41-5*
Week 9 - Tuesday, October 22 (Lecture)
Quiz #3 (CH. 41, 39)
Textbook reading assignment in preparation for lecture class:
  Chapter 39 Digital Imaging (618-623)
  Chapter 41 Intraoral Imaging

Week 9 - Tuesday, October 22 (Lab)
Textbook Procedure Lab Competencies: 40-4, 41-3, 41-5

Week 10 - Tuesday, October 29 (Lecture)
Textbook reading assignment in preparation for lecture class:
  Chapter 41 Intraoral Imaging

Week 10 - Tuesday, October 29 (Lab)
Textbook Procedure Lab Competencies: 41-3, 41-5, 41-7
Skills Exam #3 – Periapical Exposure

Week 11 - Tuesday, November 5 (Lecture)
Exam #2 (CH. 41, 39)
Textbook reading assignment in preparation for lecture class:
  Chapter 41 Intraoral Imaging

Week 11 - Tuesday, November 5 (Lab)
Textbook Procedure Lab Competencies: 41-3, 41-5, 41-7

Week 12 - Tuesday, November 12 (Lecture)
Textbook reading assignment in preparation for lecture class:
  Chapter 41 Intraoral Imaging (674-677)

Week 12 - Tuesday, November 12 (Lab)
Textbook Procedure Lab Competencies: 41-3, 41-5, 41-7
Skills Exam #4 – Periapical and Bitewing Exposures
**Week 13 - Tuesday, November 19 (Lecture)**
Quiz #4 (CH. 41)
*Textbook reading assignment in preparation for lecture class:*
  - Chapter 40 Legal Issues, Quality Assurance, and Infection Prevention (642-644)
  - Chapter 41 Intraoral Imaging

**Week 13 - Tuesday, November 19 (Lab)**
*Textbook Procedure Lab Competencies: 41-3, 41-4, 41-5, 41-7*
Skills Exam #5 – Periapical Exposure

**Week 14 - Tuesday, November 26 (Lecture)**
Quiz #5 (CH. 40)
*Textbook reading assignment in preparation for lecture class:*
  - Chapter 41 Intraoral Imaging

**Week 14 - Tuesday, November 26 (Lab)**
*Textbook Procedure Lab Competencies: 41-3, 41-4, 41-5, 41-7*

**Week 15 - Tuesday, December 3 (Lecture)**
*Textbook reading assignment in preparation for lecture class:*
  - Chapter 41 Intraoral Imaging

**Week 15 - Tuesday, December 3 (Lab)**
PRACTICAL FINAL EXAM - CUMULATIVE

**Week 16 - Tuesday, December 10 (Lecture)**
FINAL WRITTEN EXAM - RADIOGRAPHY

*Please note that in the event of extenuating circumstances the above schedule may be modified by either instructor during the interlude of this course.*