Welcome to Radiologic Technology
This course is a 3 hour, 10 min class, which includes lab activities. The lecture will introduce the basic principles of Radiologic Technology, ECC program requirements and principles of patient care. The lab activities will include equipment demonstrations, image production and introduction to digital radiography.

Student Learning Outcomes:

- Students will analyze different methods to reduce radiation dose to the patient in the radiology department.
- Students will explain the concepts of contrast and density of a radiograph.
- Students will differentiate between the 5 photon interactions in matter by describing the origin of the interaction and its effect on the body.

Colleen McFaul, Instructor
Office Phone: (310) 660-3563 x5901
Office: MBA 433
E-mail: cmcfaul@elcamino.edu
Website: http://www.elcamino.edu/faculty/cmcfaul/index.html

Textbook:
TITLE: Patient Care in Radiography: With an Introduction to Medical Imaging, 8th Edition
AUTHORS: R. Ehrlich, D. Coakes
ISBN: 978-0-323-08065-1
Available in Bookstore

Office Hours:
Monday: 11:30am-12:30pm (weeks 8-16 only)
Tuesday: 2:00-3:30pm
Thursday: 12:30-1:00pm
Saturday: 8:00-9:00

Page 2

Successful completion of this course does not guarantee placement in the next class of the Radiologic Technology Training Program at El Camino College. However, SUCCESSFUL COMPLETION IS REQUIRED for consideration as an applicant for this program.
REQUIRED MATERIALS:
- Calculator - you not be allowed to use your phone as a calculator
- An object to x-ray (week 10)
- Scantrons 882E
- Pen / Pencil / Highlighters / Erasers / Paper
- Required textbook
- Closed toe shoes (lab days)
- Access to your MyECC portal email address
- PowerPoint, Excel and Word access
- Internet Access
  - Etudes Access

ASSESSMENT:
Grade Scale:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Score Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>100% - 91%</td>
</tr>
<tr>
<td>B</td>
<td>90% - 82%</td>
</tr>
<tr>
<td>C</td>
<td>81% - 73%</td>
</tr>
<tr>
<td>D</td>
<td>72% - 64%</td>
</tr>
<tr>
<td>F</td>
<td>63% and below</td>
</tr>
</tbody>
</table>

Course Breakdown:
- Tests and Quizzes 80%
- Participation, homework, and term paper 20%
- Total 100%

Activity (approximates)
- Examinations are worth 100 points each (5 Exams) 500 points
- Quizzes (Approximately eight total) 200 points
- Final Exam (Cumulative Exam) 200 points
- Term Paper 100 points
- Homework and participation 100 points

These are approximate totals and can vary per instructor discretion.

STANDARDS OF CONDUCT:
Conduct at El Camino College must conform to the laws of the State of California, District policies, and campus rules and regulations. The El Camino College faculty, staff, and administration are dedicated to maintaining a positive learning environment. Optimal standards for behavior are essential to the maintenance of a quality college environment. These standards will apply to all students on campus, other college property or while attending any college-sponsored event. Violation of such laws, policies, rules, and regulations or behavior adversely affecting suitability as a student, will lead to disciplinary action. Disciplinary actions as noted in Administrative Procedure 5520 may be taken against any person who engages in behavior defined as misconduct. The following misconduct shall constitute good cause for discipline, including but not limited to the removal, suspension, or expulsion of a student (ECC catalog, 2012).

1) Academic Honesty:
   PLAGIARISM, CHEATING, OR FURNISHING MATERIALS IN ORDER TO ENABLE OTHER STUDENTS TO DO SO WILL NOT BE TOLERATED.

2) Disruptive Behavior, Inappropriate Conduct

3) Drugs, alcohol, and smoking

4) Theft, robbery or damage

5) Harassment or threatening and violent behavior

6) Weapons and misuse of facilities

This course will require a total score of 73% or better on exams, quizzes, group projects, labs and the cumulative final exam. You will not pass the class if you do not pass the tests. This class cannot be used as a prerequisite for our program at El Camino College if your cumulative grade on tests and quizzes is less the 73%. A score of 73% or higher must be earned on all tests and quizzes in order to be eligible for the program regardless of final grade percentage.
Continued from page 2

ATTENDANCE, MAKE-UP EXAMS, LATE WORK:

Attendance: The following is directly from El Camino College Catalog: “Students are expected to attend their classes regularly. Students who miss the first day of class meeting or who are not in regular attendance during the add period may be dropped from the class by the instructor. Students whose absences from a class exceed 10% of the scheduled class meeting may be dropped by instructor. Children are not permitted in classrooms while class is in session. Attendance in class is limited to officially enrolled students (ECC catalog, 2012).

Make-Up Exams: Make up exams are allowed only if proper steps are followed. The instructor must receive a phone call or e-mail from you the day of the examination and the exam must be made up prior to the next class session (UNLESS OTHER ARRANGEMENTS ARE MADE). Make up exams are subject to a 10% penalty. Laboratory experiments and quizzes will not be made up, nor can they be done in advance. Quizzes are given at the beginning of class, if you are more than 10 minutes late, you will not be permitted to take the quiz. Pop quizzes are unannounced and may be given at any time during the class. It is your responsibility to collect handouts and other pertinent class information. Handouts and homework from the previous week can be picked up during office hours before class.

Late Work: Late work will be accepted but with severe grade deductions. If you will not be in class, give it to a colleague to turn in or drop it off in my mailbox and ask them to date it. This is done to assure fairness to those students who complete their assignments on time.

SPECIAL RESOURCE CENTER:

As your instructor, my primary goal is your success. The Special Resource goal is “to facilitate academic success for students with disabilities by providing equal access to educational opportunities in an integrated campus setting. In order to be eligible for support services or instruction, a student must have a verification of his/her disability. Support services are provided on an individual basis as agreed upon during consultation with an SRC counselor or specialist.” (ECC catalog, 2012). If you feel you may require special accommodations please meet with me by week three of the semester and provide appropriate documentation of your special needs.

COURSE OBJECTIVES

1. Describe the basic differences between diagnostic imaging educational programs and career pathways for Radiologic Technologists and describe the types of imaging modalities used in radiology.
2. Identify and label the types of equipment used in radiography such as the x-ray tube components, circuitry, image receptors, digital imaging components, film processors and darkroom equipment.
3. Explain the discovery of x-rays, fundamental properties, and the relationship between x-ray production and photon interaction with matter.
4. Classify the units of radiation and measurement, and discuss the safety precautions used for technologists and patients.
5. Analyze the relationship of radiographic exposure and as low as reasonably achievable (ALARA) to the direct and indirect biologic effects on humans.
6. List the exposure factors that are controlled by a technologist and evaluate how these factors can affect radiographic quality, density and contrast on a radiographic image.

Continued on page 4
Continued from page 3

COURSE OBJECTIVES (cont.)

7. Define image detail and distortion, contrast and density, kVp and mAs, and explain their effects on image quality.
8. Calculate the difference in radiation dose rate using the inverse square law, kilovoltage 15% rule change and the milliamperes-seconds doubling rule changes.
9. Compare and contrast how radiographic images are acquired, processed and viewed with film/screen and digital radiography systems.
10. Describe picture archiving and communication systems (PACS), digital imaging and communication in medicine (DICOM) and teleradiography and their function in digital imaging and distinguish between the fundamentals of direct and indirect capture.
11. Discuss the proper locations and methods of obtaining vital signs, medication administration, applying universal precautions for infection control and using effective communication techniques with various types of patients.
12. Evaluate legal and ethical dilemmas related to the Radiologic Technology profession.

Date                      Topic and Reading
Please refer to complete schedule on website for more detail:

Week 1
Jan 21   Intro to Rad Sciences-Chap1 pp.3-6, Chap 22, Chap 4

Week 2
Jan 28   Radiation, Fluoroscopy Equipment and Lab Tour-Chap1 pp.11-18

Week 3
Feb 4    Ionizing Radiation and Interaction with Matter- Chap 1 pp.6-10, Chap 2pp. 23-26, Handout

Week 4
Feb 11   Biologic Response to Radiation, Radiation Units and Radiation Safety Practices- Chap 3

Week 5
Feb 18   Radiation Biology-Acute Radiation Syndromes -Chap 3

Week 7
Mar 4    Image Quality Factors: Photographic -Chap 2 pp. 30-32

Week 8
Mar 11   Image Receptor Systems-Film, CR-Chap 2 pp.27-30
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic and Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 10</td>
<td>Apr 1   Patient Care Part 1: diversity, communication and assessment-Chap 6, Chap 10, Chap 11</td>
</tr>
<tr>
<td>Week 11</td>
<td>Apr 8   Patient Care Part 2: Vital Signs, Infection Control, Medical Emergencies-Chap 8, Chap 9, Chap 15, Chap 16</td>
</tr>
<tr>
<td>Week 12</td>
<td>Apr 15  Introduction of Contrast Media and Radiopharmaceuticals- Chap 14, Chap 17, Chap 19</td>
</tr>
<tr>
<td>Week 13</td>
<td>Apr 22  Professional Ethics and HIPAA-Chap 5 pp. 69-87</td>
</tr>
<tr>
<td>Week 14</td>
<td>Apr 29  Medical Law and the Application Process-Program Director lecture</td>
</tr>
<tr>
<td>Week 15</td>
<td>May 6   Profession of Radiologic Technology-Chap 4, Chap 5</td>
</tr>
<tr>
<td>Week 16</td>
<td>May 13  Cumulative Final Exam</td>
</tr>
</tbody>
</table>

**Take Note:**

- Jan 20  Martin Luther King Day-campus closed
- Jan 31 Last Day to Drop without notation on permanent record
- Feb 7  Lincoln’s Birthday-campus closed
- Feb 17 Washington’s Birthday-campus closed
- Mar 15-21 Spring Break
- Apr 18 Last Day to Drop with a “W”
- May 16 Semester End