This course analyzes radiographic image qualities and the effects of exposure variables upon these qualities.

“Practical Radiographic Imaging,” 8th Ed., by Quinn Carroll

“Radiologic Sciences for Technologists,” 8th Ed., by Stewart Bushong

“Lecture Notes for Radt 1313,” by William Heathman

The following list of course goals will be addressed in the course. These goals are directly related to the performance objectives.

- describe the production of x-rays
- describe the formation of the latent image
- state the three recognizability factors
- define image contrast
- define image density
- describe image elongation
- define image fog
- define image foreshortening
- define image magnification
- define image sharpness
- define subject contrast
- explain the criteria for the different types of interactions to occur within the patient
- diagram and label the different types of interactions
- describe the effects that the different types of interactions have on patient dose
- explain the effects that interactions have on film contrast, density and fog
- state how time, mA and mAs effect image qualities
- state how kVp effects the image qualities
- state the effect phase and rectification of on technique and image qualities
- compare the use of protective and compensating filters
- define beam size and limitation as they apply to radiology
- compute the needed size of aperture for a given field coverage
- compute field size with distance and aperture as the variables
- explain the effect that patient physical status has technique and the image qualities
- explain why the use of contrast media is important in radiology
- define grid ratio, radius, and selectivity
- describe the effect grids have on the image qualities
explain the construction of radiographic film
explain the use for the different types of radiographic films
compute technique changes with time, mA, kVp, phase, rectification and
distance as the variables
compute multiple technique problems
perform labs as assigned
compute technique change for the different grid ratios

**Student Contributions and Class Policies**

**Attendance** is critical in this class. Students must obtain a 70% average for the
course to remain in the program. Make-up exams are given with a 10% reduction
in score unless prior arrangements have been made with the instructor to take
exam early. All missed exams must be made up by the end of the next regular
class day attended or no credit will be awarded for the exam.

Unit multiple choice worksheets are due anytime prior to the exam. Worksheets
not turned in by the start of class the day of the exam will not be accepted. It is
recommended that you turn in worksheets early so to be able to get them back
prior to the exam date.

All other late homework and labs receive a 10% reduction in score each day it is
late. Late arrival to class will constitute a late assignment. Students are strongly
encouraged to seek assistance from the instructor should they begin to have
difficulties with course material. Office hours are posted and the instructor can be
reached at home during off hours.

It is the student’s responsibility to get with instructor regarding any missed labs
and/or assignments. Completing missed labs must be done during instructor’s
office hours on Monday or Wednesday, 11am to 12pm.

A closed door policy is in effect. Late arrivals (after door has been closed) must
wait in hall till a class break occurs. Same policy is in effect following class breaks.

Students that are weak in math are strongly encouraged to seek help through adult
basic education, the career center, or in the health science lab using the Plato
math program. See Grace for assistance with Plato.

Reading assignments should be completed prior to class. Not all reading material
will be covered in lecture but may be included on exams, quizzes, and final.

**Evaluation of Students**

All grades are based on a standard percentage and not curved. Final grades are
composed of:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unit exams</td>
<td>55%</td>
</tr>
<tr>
<td>Labs and assignments</td>
<td>20%</td>
</tr>
<tr>
<td>Final exam</td>
<td>25%</td>
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</tbody>
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**Course Schedule**

Monday and Wednesday 8:00 am to 10:50 am

**SCANS**

Workplace Competencies
**Information**

- **Information**: acquires and evaluates information; organizes and maintains information; interprets and communicates information; uses computers to process information.
- **Systems**: understands systems; monitors and corrects performance; improves or designs systems.

**SAFETY TRAINING**

Students receive annual training in the following: blood and air borne pathogens, electrical safety, back safety, hazardous chemicals, latex allergies, fire and disaster procedures, security and personal safety procedures and safety requirements of clinical facilities. Students must maintain CPR, immunizations and health insurance during all clinical courses.

**Instructors**

- **Name**: William Heathman
- **Office Location**: 211 HS
- **Office Telephone**: 685-4691, Home 699-0408
- **E-Mail Address**: wheathman@midland.edu
- **Office Hours**: as posted

**Division Chairman and Division Secretary Names**: Dr. Becky Hammack and Kay Floyd

**Division Office Location and Telephone**: Davidson Family Health Science Building ~ 915/685-4600

Students are encouraged to contact the instructor at any time; however, making an appointment will guarantee the instructor’s availability at a specific time.