

GENERAL COURSE INFORMATION:**Course Title: Fundamentals of Diagnostic Imaging****Trimester Credit Hours: 2.5****Course Director: Christopher P Petrie, DC, DACBR****Email Address: cpetrie@parkercc.edu****Phone number: 972.438.6932, x7334****Office Hours: by appointment****Lab Instructors: Dr. Norton, Dr. Gilbert, Dr. Duval****Course Number: CLSC-5102****Total Contact Hours: 45****Class meeting time:****Tuesday 7:00-7:50 AM****Thursday 7:00-7:50 AM****Lab Hours Per Week: 1****Lab Contact Hours: 15****COURSE DESCRIPTION:**

Fundamentals of Diagnostic Imaging (FDI) is an introduction to the basic principles that govern diagnostic imaging. It is designed to provide a succinct tutorial in the production of x-rays and acquisition of diagnostic quality images. The course includes discussion regarding the history and discovery of x-rays, as well as, the practical physics behind them. Additional topics include x-ray interactions with matter, x-ray film and screens, film processing, radiation protection and radiobiology. The course concludes with a look at contemporary imaging modalities such as magnetic resonance imaging (MR), computed tomography (CT), nuclear medicine and ultrasound.

LEARNING OUTCOMES:

At the completion of this course, the student should be able to:

1. Explain the basic properties of matter, electricity, magnetism and electromagnetic radiation.
2. Identify the components of a plain-film imaging system and their role in image production.
3. Explain the generation of x-ray photons, their interaction with matter and how a radiographic image is formed.
4. Identify the imaging factors and how they relate to the photographic and geographic properties of the radiographic image.
5. Explain the process of image acquisition and processing.
6. Relate the basic principles of radiobiology and radiation safety.
7. Explain the basic physics principles behind advanced imaging techniques, including MR, CT and nuclear imaging modalities.
8. Identify and describe, using appropriate terminology, images produced from various modalities, including MR, CT, nuclear imaging and plain-film radiographs.

GENERAL APPROACH TO TEACHING:

FDI is designed to be interactive. Class lectures will be presented, notes will be handed out and questions from the classroom are encouraged. The Socratic Method will be used as well. I expect areas of confusion to be brought up and discussed. Students are expected to prepare in advance for the day's topic by reading the suggested section from the required text.

PREREQUISITES: None

REQUIRED TEXTBOOKS:

Radiographic Imaging & Exposure, 3rd edition, Fauber

RECOMMENDED ADDITIONAL TEXTBOOKS:

Clinical Imaging, 2nd edition, Marchiori

Essentials of Skeletal Radiology, 3rd edition, Yochum and Rowe

Radiologic Sciences for Technologist: Physics, Biology and Protection, 9th edition,
Bushong

SUPPLIES: None

EVALUATION AND GRADING POLICY:

Written Examinations:

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| ▪ Midterm Examination: Thursday, June 17 th , 7:00 AM | 25% |
| ▪ Final Examination: Monday, August 16 th , 11:00 AM | 25% |

The written examinations may, at the instructor's discretion, be composed of a combination of multiple choice, matching, true/false, fill-in-blank or short-answer questions. The midterm will consist of approximately 50 questions to be completed in 50 minutes. The final exam will consist of a maximum of one hundred (100) questions to be completed in ninety (90) minutes.

Lab (Practical) Examinations:

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| ▪ Midterm Examination: Thursday, July 1 st , 7:00 AM (in classroom) | 20% |
| ▪ Final Examination: Tuesday, August 12 th , 7:00 AM (in classroom) | 20% |

The midterm practical examination will consist of approximately 20 questions presented in PowerPoint[®] format. The examination will be composed of a combination of multiple choice, fill-in-the-blank or short-answer questions. The questions are timed with approximately 75 seconds per question.

Quizzes:

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| ▪ Lecture and lab: | 10% |
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Lecture quizzes will be given at the discretion of the instructor and may be announced or unannounced. These quizzes will be completed independently by each student, consist of approximately 5 questions covering any previous topic and may be given at any time throughout the class period. Class attendance may also be used as a quiz grade. No make-ups will be given for missed quizzes, to include the student arriving late to class. No exceptions for any reason will be accepted.

Lab quizzes will consist of approximately 5 to 10 questions and will be given at the **beginning** of each lab. The questions may be any format and will pertain to material covered from the previous labs, thus each quiz should be considered comprehensive. Missed quizzes will be handled as any missed exam. Students must attend their assigned lab unless arrangements are made prior to the lab. See “Missed Exam Policy”. In the event a student misses lab and the quiz, he may choose to attend a different lab. He will be allowed to take the quiz (as a learning instrument) but will receive a grade of 0. However, credit for attendance will be given.

ESTIMATE OF STUDENT WORK LOAD:

As graduate-level students, my academic expectations are high. Success in this course is multi-factorial. The following list represents a suggested strategy for successful course completion.

1. Be familiar with this syllabus and the lecture and lab calendars.
2. Consult the course calendars regularly to ensure you stay abreast of the current topics of discussion.
3. You should anticipate spending, at a minimum, 1 – 2 hours each day studying the information discussed in this course. This may include review of notes, reading the required textbooks, or discussing topics with your peers (group study).
4. Each lecture hour is recorded and can be downloaded from the link on the Fundamentals in Diagnostic Imaging course page of MyParker or through iTunes University. These should be reviewed as needed.
5. Utilize the Parker Radiology Website. There is a link on the Fundamentals in Diagnostic Imaging course page of MyParker.
6. Come to each class meeting prepared, no matter if it is lecture or lab. Know what topics are to be discussed and read ahead.
7. Participate in lecture and lab sessions.
8. Come see me if you need any help. You may also inquire about a tutor in the Student Affairs office.

STUDENTS WITH SPECIAL NEEDS:

Parker College of Chiropractic adheres to section 504 of the Federal Disability law and assists qualified students. If you feel you qualify for this type of assistance, you should contact the Office of Student Affairs.

90/90 RULE:

The 90/90 rule is not applicable for this class.

COMPLETE LISTING OF ALL ACADEMIC POLICIES:

https://myparker.parkercc.edu/ICS/Academics_-_Coursework/Academics/College_Catalog

IMPORTANT NOTE:

The provisions contained in this syllabus do not constitute a binding contract between the student and the Parker College of Chiropractic. These provisions may be changed at any time and for any reason at the discretion of the Course Director. When it is necessary to make changes to this document, appropriate notice (at least one week, if at all possible) will be given to the student(s).