Course Syllabus

Course Number: CLSC-5102 **Trimester Credit Hours: 2.5**
Course Title: Fundamentals of Diagnostic Imaging
Course Director: Christopher P Petrie, DC, DACBR **Total Contact Hours: 45**
Email Address: cpetrie@parkercc.edu
Phone number: 972.438.6932, x7334 **Lab Hours Per Week: 1**
Office Hours: by appointment
Lab Instructors: Dr. Ghelarducci and Dr. Russ **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) and nuclear medicine.

GENERAL APPROACH TO TEACHING:

FDI is designed to be interactive. Approximately ten minute webinars for each topic are available from the course webpage. These are expected to be reviewed prior to the lecture period. Class lectures will expound on the webinar topics and include discussion and interactive exercises. Students are expected to prepare in advance for the day's topic by reading the suggested section from the required text in addition to watching the pertinent webinars. Students may use other sources for class preparation and studying such as other texts, Wikipedia and other online sources; however, the required text will be the reference for all tests.

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. Be prepared for class by watching the webinars and reading the textbook passages pertinent to the topics to be discussed in lecture ahead of time.
4. 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).

5. Each lecture hour is recorded and can be downloaded from the link on the Fundamentals of Diagnostic Imaging course page of MyParker or through iTunes University. These should be reviewed as needed.
6. Utilize the Parker Radiology Website. There is link on the Fundamentals of Diagnostic Imaging course page of MyParker.
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.

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

ASSESSMENT

Written Examinations:

- Midterm Examination: Friday, July 1st, 7:00 AM 25%
- Final Examination: Monday, August 15th, 11:00 AM 20%

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 exam will consist of approximately 75 questions to be completed in 90 minutes. The final exam will consist of approximately 75 questions to be completed in 90 minutes.

Practical Examinations:

- Final Examination: Friday, August 12th, 7:30 AM (in classroom) 25%

The 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.

Other:

- Lecture quizzes: 10%

Lecture-preparedness quizzes will be given at the beginning of each lecture period. Quizzes will cover the webinar and reading material pertinent to the day's topic. The quizzes will be multiple-choice in format and consist of approximately five questions. No make-ups will be given for missed quizzes, to include the student arriving late to class. Exceptions will not be made for any reason.

- Lab participation/completion: 10%

Lab activities are intended to enhance student understanding of the course material and apply that knowledge in a practical way. Grading of lab activities will be based on participation and completion of the activities. 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, he may choose to attend a different lab; however, only credit for attendance will be given. Lab activities cannot be made-up for any reason, no exceptions.

- In-class activities: 10%

Various in-class activities will be used to reinforce concepts. Grades for this will come from graded assignments/exercises and class participation. In-class activities cannot be made-up for any reason, no exceptions.

PREREQUISITES:

Enrollment at Parker University, College of Chiropractic

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

GRADING SYSTEM:

Evaluation is an integral part of the educational process and is used as an educational tool to help students identify problem areas, to recognize and reward achievement, and to

identify students who are unable to meet the rigors of the curriculum. Final course grades and their interpretation are listed below:

Grade	Numerical Value	Grade Point Average	Interpretation of Academic Achievement
A	89.5 – 100	4.0	Excellent
B	79.5 - 89.49	3.0	Above Average
C	69.5 - 79.49	2.0	Satisfactory
F	69.49 or Below	0.0	Unacceptable

This grading scale is strictly adhered to. There are NO exceptions.

LABS:

No additional supplies are required for lab. Students will be taking and developing x-ray films in the lab. If a student has a concern about radiation exposure or chemical exposure during the lab experiments, they should be brought to the course director's attention at the beginning of the course. Where possible, accommodations will be made for those students.

OPEN LABS:

Open labs are held each week beginning in week 4 according to the schedule published on MyParker. The labs are monitored by student workers who are not expected or obligated to offer tutoring to students. Students are encouraged to discuss questions about course content with either the course director or their lab instructor. The course director is not responsible for incorrect information relayed by student workers in the open labs.

90/90 RULE:

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

EXTRA CREDIT:

Opportunities to earn additional points may be included on the various grading instruments used in the course. The instructor reserves the right to offer additional opportunities at his discretion.

COMPLETE LISTING OF ALL ACADEMIC POLICIES:

A complete listing of all Academic policies is found on the MyParker Website/Academic Home Page/Common Policies:

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

Absences for Religious Holidays

Academic Dishonesty
Academic Promotion, Probation and Dismissal Policy
Appeals
Assistance and Accommodations
Attendance Policy
Audio/Video Taping
Cell Phones and Electronic Devices in Class
Classroom Behavior
Communications
Computer Usage
Examinations (Make up Exams/Lab Practicals)
Altering Grades on Exams
Exam Review
Final Examinations
Grading System
Late Instructors to Lecture/Lab
Missed Exam Policy
Professional Decorum
Special Needs Consideration
Student Bereavement Policy
Excused Absences

DISCLAIMER:

The lecture outlines contained in the lecture booklet are NOT intended to represent the entire content of the course. A lecture outline is intended to be a guide to the lecture. The responsibility of the instructor is to follow the outline, expand the concepts and give explanation and illustrations to clarify content. The role of the student is to attend lecture and take notes over material presented by the lecturer that explains and illustrates the material listed in the outline. It is also the responsibility of the student to question the instructor if explanations and illustrations are not clearly presented or understood.

The instructors take no responsibility for the accuracy or completeness of old notes, quiz questions or exam questions that students may purchase, acquire from off of the internet or be given by previous students.

IMPORTANT NOTE:

The provisions contained in this syllabus do not constitute a binding contract between the student and the Parker University, 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).