



**Course Syllabus<sup>1</sup>**  
Fluoroscopy for the Physician Assistant  
Cohort 27, Winter 2022

Course Information		Instructor Information	
Quarter Credits:	N/A	Primary Instructor:	Kelly Angel
Course Type:	Didactic	Secondary Instructor(s):	N/A
Scheduled Hours:	Online Asynchronous	Instructor(s) Email:	Kelly.angel@kp.org
Assigned Room:	Online	Instructor(s) Phone:	510-231-5034
Class Day(s):	Online	Instructor(s) Fax:	877-702-4063
Class Time:		Office Hours:	By Appointment
Pre-Requisite:	None		
Co-Requisite:	None		

### Course Description

This course prepares the student for the fluoroscopy content within the California Fluoroscopy exam. The course covers radiation safety issues consistent with California Code of Regulations, Title 17; Code of Federal Regulations 10 CFR 20 and 21 CFR 1020; regulatory provisions; anatomy and physiology; the radiobiologic effects on human tissue; image intensification; image recording systems; and facility design, survey and quality assurance.

### Textbook(s) & Course Materials

**Required Text:** *Bushong, Stewart C. (2017). Radiologic Science for Technologists: Physics, Biology, and Protection (11<sup>th</sup> ed). St. Louis, MO: Elsevier. ISBN: 978032335377-9*

*Excerpts from the California Radiation Control Regulations California Administrative Code, Title 17, Health.*

*Excerpts from the Code of Federal Regulations, 21 CFR 1020, Performance Standards for Ionizing Radiation Emitting Products*

*ARRT Content Specifications for the Fluoroscopy Examination*

**Other Required Materials:** A calculator is required for this course.

<sup>1</sup> Syllabus subject to change.

## Course Approach

1. This course will consist of recorded lecture/demonstration. Reading assignments apply each week. **The student is responsible for information contained within the text.**
2. Handouts, videos, schematics, radiographs, and quizzes will be used to facilitate the learning process.
3. **Since the course will be conducted in an asynchronous manner, the student may proceed as his/her own pace. The instructor will have office hours by appointment throughout the course and will be available for live help via phone, Teams chat, or Zoom.**
4. **Forty hours of clinical education will be conducted at a KPSAHS-affiliated clinical site.** Required forms will be available on KP Scholar, the Learning Management System. **\*\*Please refer to KP Scholar for specific instructions\*\***

## Course Objectives

This course is designed to:

1. Prepare the student for the California Department of Public Health, Radiologic Health Branch's examination for the Fluoroscopy Permit;
1. Provide a comprehensive overview of radiation safety issues consistent with Title 17; regulatory provisions; anatomy and physiology; the radiobiologic effects on human tissue; image intensification; image recording systems; and facility design, survey and quality assurance

## Course Student Learning Outcomes

Upon completion of this course, the student will be able to:

1. Differentiate between the sources, types and characteristics of radiation
2. Relate the historical development of radiation protection
3. Explain the technologist role in radiation protection from an ethical point of view
4. Indicate the importance of facility design as it relates to radiation protection
5. Evaluate the function of the fluoroscopic unit and related equipment
6. Distinguish between the biologic effect of radiation on human tissue both primary and secondary effects
7. Specify the state and federal regulation related to the operation of fluoroscopic units
8. Compare and contrast quality control methods used to monitor equipment, patient and operator
9. Employ effective methods to reduce radiation exposure to both patient and operator

## Suggested Course Schedule [Cohort 23]

Week	Date	Subject	Reading	Exams
1	01/03/2022	Introduction / Get Acquainted Introduction to Radiation Safety	See LMS for Instructions	
2	01/10/2022	Introduction to Radiation: Production, Characteristics, and Interaction with Matter (WebEx Recording / LMS)	Bushong: Chapters 5 – 9	
3	01/17/2022	Radiation Biology (WebEx Recording / LMS)	Bushong: Chapters 29 - 34	
4	01/24/2022	Radiation Biology (continued via WebEx Recording/ LMS)		
5	01/31/2022	Fluoroscopic Unit Operation (WebEx Recording /LMS)	Bushong: Chapters 11, 25	
6	02/07/2022	Fluoroscopic Unit Operation (continued via WebEx Recording and LMS) Contrast Media	Bushong: Chapter 9	
7	02/14/2022	Radiation Protection (WebEx Recording)	Bushong: Chapters 35 – 37, 39 - 40	
8	02/21/2022	Radiation Protection (continued via WebEx Recording and LMS)		
9	02/28/2022	Digital Fluoroscopy and Quality Control (WebEx Recording)	Bushong: Chapter 26, 27; California Title 17 10 CFR 20; 21 CFR 1020	
10	03/07/2022	Digital Fluoroscopy and Quality Control (continued via WebEx Recording and LMS)		
11	03/14/2022	Review (Live Teams / Zoom Meeting if necessary)		
12	03/21/2022	<b>Final Exam</b>	<b>The final can be done at your convenience. E-mail the instructor for the password.</b>	

**Note:** The student is responsible for all assigned reading. Although information may not be covered in the lecture, this material WILL be included on all tests and quizzes. **This course will close on September 23, 2022**