



Course Syllabus

Course title: Principles of Radiographic Imaging 2

Class section: MRAD - 159 - BX01D

Term: 2025S

Course credits: 3

Total hours: 75

Delivery method: Blended

Territorial acknowledgment

Camosun College respectfully acknowledges that our campuses are situated on the territories of the Lək̓ʷəŋən (Songhees and Kosapsum) and W̱SÁNEĆ peoples. We honour their knowledge and welcome to all students who seek education here.

Instructional hours

Lecture hours: 3 per W

Lab hours: 2 per W

W = Week

T = Term

Instructor details

Name: Daniel Andrews

Email: AndrewsD@camosun.ca

Course description

Course Description:

In this advanced-beginner course, students build on their knowledge of how to operate radiographic and accessory imaging equipment. Students explore fluoroscopy, mammography, mobile radiography, as well as intra-operative equipment. Students focus on the digital imaging process and digital archiving principles as they apply to a variety of radiographic imaging modalities. In the lab component of this course, students execute quality control tests and apply tolerance standards as outlined in federal safety codes to assess equipment performance.

Prerequisites:

All of:

- C+ in MRAD 119

Learning outcomes

Upon successful completion of this course a student will be able to:

1. Describe the evolution, function, and importance of x-ray tubes used in a variety of medical imaging procedures.
2. Explain how diagnostic images are produced by describing the components and function of computed radiography, digital radiography, fluoroscopy, mobile radiography, mammography, and C-arms.
3. Describe how digital imaging principles and techniques are used in the performance of medical radiography.
4. Describe the use of digital archiving principles in the management of imaging data within a variety of workplace settings.

5. Apply the principles of quality control and quality assurance to review and analyze radiographic images for accuracy and quality.

Competency mapping

Learning Outcome	Competencies
Upon successful completion of this course, a learner will be able to:	
1. Describe the evolution, function, and importance of x-ray tubes used in a variety of medical imaging procedures.	RTR.2.1 Apply knowledge of radiation physics RTR.2.2 Apply knowledge of the operational components of imaging systems to optimize images and data
2. Explain how diagnostic images are produced by describing the components and function of computed radiography, digital radiography, fluoroscopy, mobile radiography, mammography, and C-arms.	RTR.2.2 Apply knowledge of the operational components of imaging systems to optimize images and data RTR.2.4 Operate imaging systems
3. Explain the safety features and ensure radiation exposure is kept as low as reasonably achievable (ALARA) when operating a variety of radiographic systems, including computed radiography, digital radiography, fluoroscopy, mobile radiography, mammography, and C-arms.	RTR1.4 Adapt safety practices according to equipment type RTR1.5 Apply ALARA principle RTR2.6 Recognize and respond to emergencies involving equipment
4. Describe how digital imaging principles and techniques are used in the performance of medical radiography.	RTR.2.2 Apply knowledge of the operational components of imaging systems to optimize images and data RTR.2.4 Operate imaging systems RTR.6.1 Apply knowledge of principles affecting image quality
5.	RTR.2.5 Use digital networking and archiving systems

Describe the use of digital archiving principles in the management of imaging data within a variety of workplace settings.	
6. Apply the principles of quality control and quality assurance to review and analyze radiographic images for accuracy and quality.	RTR.2.7 Participate in a repeat/reject analysis program
7. Critically appraise a scholarly article pertaining to a relevant topic related to radiographic equipment and emerging technologies in digital radiography	RTR3.5 Describe fundamentals of advanced and emerging techniques/procedures 6.3.3 Critically appraise professional literature to assess relevance to practice

Course reading materials



Title: Radiologic Science For Technologists

Authors: Bushong

Publisher: Elsevier

Publication Date: 2021

Edition: 12th

Required/Optional: Required



Title: Safety Code 35: Safety Procedures for the Installation, Use and Control of X-ray Equipment in Large Medical Radiological Facilities

Authors: Consumer and Clinical Radiation Protection Bureau, Environmental and Radiation Health Sciences Directorate, Healthy Environments and Consumer Safety Branch, Health Canada

Publisher: Government of Canada

Publication Date: 2024

Additional Information

<https://www.canada.ca/en/health-canada/services/environmental-workplace-health/reports-publications/radiation/safety-code-35-safety-procedures-installation-use-control-equipment-large-medical-radiological-facilities-safety-code.html>

Required/Optional: Required

Course schedule

WEEK / DATE RANGE	ACTIVITY or TOPIC	OTHER NOTES
1—May 5-9	Intro	
2—May 12-16	QC Lecture 1 DR Lecture 1 - Digital radiography and image processing	QC Lab 1
3—May 19-23	No classes Monday, May 19 (Victoria Day) Review Information Literacy content on D2L Search for Seminar Articles	
4—May 26-30	QC Lecture 2 Work on Seminar Presentations	QC Lab 2
5—June 2-6	QC Lecture 3 DR Lecture 2 - Comparison of DR systems	QC Lab 3
6—June 9-13	QC Lecture 4 DR Lecture 4 – Image quality, post-processing, and artifacts	QC Lab 4
7—June 16-20	QC Lecture 5 DR Lecture 5 – PACS and imaging informatics Seminar 1	QC Lab 5
8—June 23-27	QC Lecture 6 DR Lecture 6 – Digital fluoroscopy Seminar 2	QC Lab 6
9—June 30-July 4	No classes Tuesday, July 1 (Canada Day) DR Lecture 7 – Mobile Radiography Seminar 3	

WEEK / DATE RANGE	ACTIVITY or TOPIC	OTHER NOTES
10—July 7-11	QC Lecture 7 Work on RFP Projects Seminar 4	QC Lab 7
11—July 14-18	QC Lecture 8 DR Lecture 8 – Digital Mammography & BMD Seminar 5	QC Lab 8
12—July 21-25	DR Lecture 9 – Radiation Safety and Protection Seminar 6	
13—July 28-Aug 1	RFP Presentations July 29 @ 10:30am in CHW 135 Seminar 7	
14—Aug 4-8	No classes Monday, August 4 (BC Day) QC Test (30%)	QC Test
15—August 11-14	Final Exam Period	

Assessment and evaluation

Type	Description	Weight
Assignment	QC Labs	10%
Assignment	Seminar Presentation	20%
Group Project	RFP Project	30%
Quizzes and tests	QC Test	30%
Quizzes and tests	Seminar Quizzes	10%

Course guidelines and expectations

Lab Attire

Scrubs, appropriate shoes, and OSLs are to be worn while in labs.

MRAD Program Late Policy

All quizzes and assignments are meant to provide an opportunity to deepen your understanding and connection with the learning materials. They must be submitted by dates shown on the course schedule and on D2L. Print the course calendar and check in with it often to make sure you are on track. There may be a penalty of 10% per day applied to assignment marks. The instructor will notify you before this penalty is applied the first time. Thereafter, it will be applied automatically if homework continues to be handed in late. After one week has passed, the quiz/assignment will no longer be accepted and a score of zero will be given.

MRAD Program Academic Integrity

You are expected to produce your own work, in your own words, upholding the academic and professional integrity expected of Camosun College students and medical radiography professionals. An incidence of academic misconduct will result in a score of zero for that assignment or exam. This includes plagiarism, whether intentional or unintentional. Continued incidences of academic misconduct may result in escalated actions such as failing this course or removal from the MRAD program. Please see the Academic Integrity policy linked below for more detailed information. Students are encouraged to retake the Academic Integrity course on D2L as a reminder of professional and ethical academic integrity.

Citations and Referencing

If you are sourcing your answers from the required course textbooks, you do not need to provide a citation or a reference. If you source from external resources, citations and references are required. All information sourced from an outside source, whether a paraphrase or a quote, must be cited and referenced.

Using Quotes in Answers

Do not provide answers with only a quote from a source. While it is not plagiarism to answer with only a quote, this is not demonstrative of your knowledge. Answering questions in your own words demonstrates that you understand the content and can express it in an accurate way that makes sense to you. A quote may be included with your answer, but only as a way to support and provide extra to your words. Answers that includes mostly a quote will be scored zero.

College policies and student responsibilities

The college expects students to be responsible, respectful members of the college community. Responsible students meet expectations about attendance, assignments, deadlines, and appointments. They become familiar with academic policies and regulations, and their rights and responsibilities.

College policies are available online at the [Policies and Directives](#) page. Academic regulations are detailed on the [Academic Policies and Procedures for Students](#) page.

Policies all students should be familiar with include the [Academic Integrity Policy](#). This policy expects students to be honest and ethical in all aspects of their studies. It defines plagiarism, cheating, and other forms of academic dishonesty. Infractions of this policy can result in loss of marks or a failing grade. To learn more about plagiarism and cheating, including the use of artificial intelligence, review the [Academic Integrity Guide](#).

The [Academic Accommodations for Students with Disabilities Policy](#) defines how Camosun provides appropriate and reasonable academic accommodations. The Centre for Accessible Learning (CAL) coordinates academic accommodations. Students requiring academic accommodations should request and arrange accommodations through CAL. Contact CAL at least one month before classes start to ensure accommodations can be put in place in time. Accommodations for quizzes, tests, and exams must follow CAL's booking procedures and deadlines. More information is available on the [CAL website](#).

Students must meet the grading and promotion standards to progress academically. More information is available in the [Grading Policy](#).

The college uses two grading systems. A course will either use the standard letter grade system (A+ to F) or a competency-based approach with grades of complete, completed with distinction or not completed. Visit the [Grades/GPA page](#) for more information.

Students must meet the college's academic progress standards to continue their studies. A student is not meeting the standards of progress when a GPA falls below 2.0. The college offers academic supports for students at risk of not progressing. The [Academic Progress Policy](#) provides more details.

If you have a concern about a grade, contact your instructor as soon as possible. The process to request a review of grades is outlined in the [Grade Review and Appeals Policy](#).

The [Course Withdrawals Policy](#) outlines the college's requirements for withdrawing from a course. Consult the [current schedule](#) of deadlines for fees, course drop dates, and tuition refunds.

If students experience a serious health or personal issue, they may be eligible for a [medical or compassionate withdrawal](#). The [Medical/Compassionate Withdrawal Request Form](#) outlines what is required.

The [Acceptable Technology Use](#) policy ensures the use of the college network and computers contribute to a safe learning environment. This policy also applies to the use of personal devices with the college network.

Students experiencing sexual violence can get support from the Office of Student Support. This Office of Student support is a safe and private place to discuss supports and options. More information is available on the [sexual violence support and education site](#). Students can email oss@camosun.ca or phone 250-370-3046 or 250-370-3841.

The [Student Misconduct Policy](#) outlines the college's expectations of conduct. Students should behave to contribute to a positive, supportive, and safe learning environment.

The [Ombudsperson](#) provides an impartial, independent service to help students understand college policies.

Services for students

Successful students seek help and access college services. These services are recommended to make the most of your time at college.

Services for Academic Success

- [Career Lab](#): Connects students with work-integrated learning experiences, including co-op placements and career fairs.
- [English, Math, and Science Help Centres](#): Get one-on-one help with homework.
- [Library](#): Get help with research, borrow materials, and access e-journals and e-books. Libraries at both campuses provide computers, individual and group study spaces.
- [Makerspace](#): A place to innovate, collaborate, and learn new skills and technology in a fun, dynamic, inclusive environment.
- [Writing Centre & Learning Skills](#): Get assistance with academic writing or meet with a learning skills specialist for help with time management, preparing for exams, and study skills.

Enrolment, Registration, and Records

- [Academic Advising](#): Talk to an academic advisor for help with program planning.
- [Financial Aid and Awards](#): Learn about student loans, bursaries, awards, and scholarships.
- [Registration](#): Get information about Camosun systems, including myCamosun, and college policies and procedures.
- [Student Records](#): Get verification of enrolment to access funding, request a transcript, or credential.

Wellness and Cultural Supports

- [Counselling](#): It's normal to feel overwhelmed or unsure of how to deal with life's challenges. The college's team of professional counsellors are available to support you to stay healthy. Counselling is free and available on both campuses. If you need urgent support after-hours, contact the Vancouver Island Crisis Line at 1-888-494-3888 or call 911.
- [Centre for Indigenous Education and Community Connections](#): Provides cultural and academic supports for Indigenous students.
- [Camosun International](#): Provides cultural and academic supports for international students.
- [Fitness and Recreation](#): Free fitness centres are located at both campuses.

For a complete list of college services, see the [Student Services](#) page.

Changes to this syllabus

Every effort has been made to ensure that information in this syllabus is accurate at the time of publication. The College reserves the right to change the course content or schedule. When changes are necessary the instructor will give clear and timely notice.