

 <p>CAMOSUN COLLEGE</p>	<p style="text-align: center;"><i>School of Health & Human Services</i> Medical Radiography Technology</p> <p>Course Name: Radiographic Procedures 1 Course Number: MRAD 109</p>
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COURSE OUTLINE

The Approved Course Description is available on the web:

<http://camosun.ca/learn/calendar/current/web/mrad.html#MRAD109>

Please note:

- *This outline will be electronically stored for five (5) years only. It is strongly recommended students keep this outline for their records.*
- *This course is only open to students in the Medical Radiography program.*

Introduction:

This course is the first of three focusing on patient care, medico-legal documentation, image production and diagnostic quality. This course provides the theory and skills required to perform basic imaging procedures of the axial (vertebrae and thoracic cage) and appendicular skeleton (excluding skull), chest and abdomen.

In addition, students will cover the positioning requirements and patient care associated with gastrointestinal system examination. Emphasis is placed on problem solving for atypical patients and their specific physical, emotional and psychological needs. The theory will be supported by various laboratory settings and hands-on experiences to prepare for the clinical practice.

Students must achieve a minimum of a C+ (65%) to use this course as a prerequisite. Refer to the Camosun Calendar for detailed information about course prerequisites.

1. Instructor Information

(a)	Instructor:	Lynelle Yutani
(b)	Office Hours:	Mon 1130 – 1230, Thur/Fri 1230 – 1320 or by appointment
(c)	Location:	WT 212D
(d)	Phone:	250-370-3995
(e)	Email:	yutaniL@camosun.ca
(f)	Website:	http://online.camosun.ca/

2. Intended Learning Outcomes/Competencies

Letters and numbers following certain learning outcomes indicate the specific competencies covered from the CAMRT Medical Radiography Competency Profile:

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

1. Interpret physician requests for patient examinations. (A1.1, B2)
2. Effectively communicate with the patient and healthcare team. (A1.1)
3. Plan the examination based on patient needs and room environment. (A1.1, B2.4)
4. Apply appropriate interview questions to ascertain patient's history and identity. (A1.1, B1.7, B1.8, B1.9, B2.2, C1.3)
5. Counsel patient with respect to pre and post procedural care. (B3.5, F29.5, F30.5, G3.11, G4.13, G5.13, G6.14)
6. Assess the patient's physical, mental, or psychological limitations and provide for alternate methods of achieving required images. (A1.1)
7. Describe methods to familiarize the patient to the imaging environment. (B2)
8. Describe course of action for confirmed pregnant patients. (A2.6, A2.7, C1.3, E1.12)
9. Provide patient care prior, during, and post examination. (B3, B5)
10. Compensate for the influence of age on routine examinations. (A1.1, E1.12)
11. Describe and apply principles of beam geometry on body anatomy. (F1.1, G1.1, H1.1)
12. In an organized manner, accurately position the patient to demonstrate the required body anatomy of the:
 - a. Axial and appendicular skeletons (F1.1, F1.3, F1.4; F2-9 and F14-24-except for .2)
 - b. Vertebrae (F1.1, F1.3, F1.4; F25-30 except for .2)
 - c. Thoracic cage and shoulder girdle (F1.1, F1.3, F10-F13 except for .2)
 - d. Chest (H1.1, H1.3, H1.4, H3)
 - e. Abdomen (G1.1, G1.2, G1.3, G2 except for .2)
 - f. Gastrointestinal system. (G1.1, G1.2, G1.3, G3-6 except for .2)
13. Apply gross relational anatomy and its relationship to external surface landmarks and bodily habitus to positioning requirements. (F2.1, F3.1, F4.1, F5.1, F6.1, F7.1, F8.1, F9.1, F10.1, F11.1, F12.1, F13.1, F14.1, F15.1, F16.1, F17.1, F18.1, F19.1, F20.1, F21.1, F22.1, F23.1, F24.1, F25.1, F26.1, F27.1, F28.1, F29.1, F30.1, G2.1, G3.1, G4.1, G5.1, G6.1, H3.1)
14. Demonstrate the correct and efficient use of radiographic, accessory equipment and PACS. (C1, E1.1-.3, E1.9-.10, E1.12-.14, E3.1)

15. Accurately select, activate and monitor radiographic exposure settings such as kV, mAs, and distance based on equipment, patient habitus, pathologies and equipment. (E1.1, E1.2, E1.3, E1.9, E1.10, E1.12, E1.13, E1.14)
16. Provide a radiation safe environment for themselves, all members of the imaging team, allied health professionals, patients and bystanders. (A2.6, A2.7, C1.1-.6, C2)
17. Evaluate radiographic images for image quality and diagnostic acceptability. (A1.1, E1.14, E2)
18. Apply corrective measures as required to resultant image. (A1.1, E1.12-.14, E2)
19. Identify gastrointestinal contrast media, dosage, contraindications, and potential reaction. (G3.5-.7, G4.6-.8, G5.6-.8, G6.6-.8)
20. Identify supporting medication for digestive procedures. (G6.9)

[CAMRT Medical Radiography Competency Profile](#)

3. Learning Resources

Required Textbooks:

- Ballinger, P.W., & Frank, E.D. (2012). *Merrill's Atlas of Radiographic Positions and Radiologic Procedures, Volumes 1, 2 & 3* (12th ed.). Mosby: Elsevier.
- McQuillen/Martensen (2011). *Radiographic Image Analysis*, (3rd ed.). Saunders: Elsevier.
- Fauber (2013). *Radiographic Imaging and Exposure*, (4th ed.). Mosby: Elsevier.
- Torres, L.S., Dutton, A.G., & Linn-Watson, T. (2010). *Patient Care in Imaging Technology* (7th ed.). Baltimore: Lippincott Williams & Wilkins.
- Carlton, Greathouse, Adler. (2006) *Delmar's Principles of Radiographic Positioning and Procedures Pocket Guide*, (2nd ed.). Delmar Cengage Learning: Nelson.

Optional Textbooks: (available for purchase or on reserve in library):

- McQuillen/Martensen (2011) *Radiographic Image Analysis, Workbook* (3rd ed.). Saunders: Elsevier.
- Carlton, R.R. & Adler, A.M. (2005). *Principles of Radiographic Imaging – An Art and a Science* (4th ed.). Delmar Cengage Learning: Nelson.
- Bushong, S.C. (2008). *Radiologic Science for Technologists: Physics, Biology, and Protection* (10th ed.). Elsevier Health Sciences.
- Medical dictionary – Student's Choice

Desire-to-Learn (D2L):

D2L – the Camosun College online learning portal contains the remainder of the learning materials for this course. Students are expected to familiarize themselves with the online learning environment and all the features it has to make this course experience enriching. Log on at <https://online.camosun.ca/> to access these materials.

Additional resources may include, but are not limited to: lecture notes, PowerPoint slides, Laboratory Manuals, and hyperlinks. You may prefer to download lectures notes ahead of time (when available) and then write your notes directly onto copies of the slides.

D2L materials **must not** be considered your sole source of information! They merely summarize the main points and provide direction for your learning experiences. You may need to write down additional information in each lecture. Additionally, not all details can be covered in a lecture, and you will be required to refer to textbook material that is not discussed specifically in class.

Other Materials:

Additional resources may include, but are not limited to: lecture notes, PowerPoint slides, Textbook Companion Workbooks, Laboratory Manuals, and hyperlinks. You may prefer to download lectures notes ahead of time (when available) and then write your notes directly onto copies of the slides.

4. Student Assessment

Module Quizzes	20 %
Assignments	10 %
Lab	40 %
Cumulative Final Exam	30 %
TOTAL	100 %

Students must achieve a minimum of 65% to use this course as a prerequisite.

Assessment Details

Assignments will be accessible from within D2L and are posted no later than the first day of the module. Critique and Lab submissions will be due at the end of the last lab, Friday **before** each module quiz.

If you fail to turn in a completed assignment on time, you will incur a **2% penalty** on your **final** grade. Exceptions to this rule will be made solely at the discretion of the instructor. In mitigating circumstances, evidence of acute injury, illness, or other emergency situation may be required. However, this does not guarantee that an exception will be made. In such situations, it is highly recommended that students attempt to arrange an extension of an assignment **BEFORE** the due date, if possible.

In emergency circumstances, a student may arrange to write a final examination before or after the scheduled time if the student would otherwise be unable to complete the program or course. Exceptions due to emergency circumstances, such as unavoidable employment commitments, health problems, or unavoidable family

crises, require the approval of the instructor. Holidays or scheduled flights are not considered to be emergencies. The student may be required to provide verification of the emergency circumstance. (Camosun Academic Policy <http://camosun.ca/learn/calendar/current/pdf/academic-policies.pdf>)

Quizzes are administered in class on Tuesdays.

There is **NO midterm** exam for this course.

The final exam will be scheduled by the registrar and is a **cumulative** essay of the entire course.

Assignments:

- Late assignments are subject to a **2% penalty** subtracted from a student's total **FINAL GRADE** in the course. (E. g. Three "late" assignments over the course of the term will result in 6% subtracted from the student's final grade *after* all assignments, quizzes, and the final exam are calculated.)
- Failing to turn in a completed assignment results in a ZERO mark for the assignment **in addition** to the late assignment penalty.
- Incomplete assignments are not accepted.
- Unless otherwise stated, all assignments will be submitted via D2L.

While lab attendance is **not** mandatory, students receive marks for completing activities with a lab partner. When an unexplained/unsanctioned lab absence compromises a lab partner's ability to complete a lab assignment, the absent student shall incur a **2% penalty** subtracted from a student's total **FINAL GRADE** in the course. In addition, a student missing lab experiences may not achieve full marks for the lab. Consider this carefully when choosing to opt out **or** failing to notify your partner, instructor, and program assistant of an unavoidable absence. **Lab is 40% of the final grade.**

5. Course Content and Schedule:

Lecture Days/Times & Room Number:

MRT212C:

Procedures: Monday 12:30 PM – 2:20 PM & Wednesday 9:30 AM – 11:20 AM

Critique: Alternating Tuesdays & Wednesdays 2:30 PM – 4:20 PM

Lab Days/Times & Room Number:

X-RAY LABS (MRT21X & 21Y):

Procedures: Alternating Tuesdays 12:30 PM – 1:20 PM or 1:30 PM – 2:20 PM, Alternating Tuesdays & Wednesdays 2:30 PM – 4:20 PM and Alternating Thursdays 1:30 PM – 3:20 PM or Fridays 2:30 PM – 4:20 PM

Critique: Alternating Tuesdays 12:30 PM – 1:20 PM or 1:30 PM – 2:20 PM and Alternating Thursdays 1:30 PM – 2:20 PM or Fridays 2:30 PM – 3:20 PM

Students are broken up into four different lab sections and will rotate each module.

The following schedule is tentative and subject to change if deemed necessary by the instructor.

Week	Dates	Lecture/Module	Topics, Quizzes, Assignments
1	Sept 4-7	1. Radiography Basics	<ul style="list-style-type: none"> • No Quiz week 1. • Introduction to the Camosun College Medical Radiography Technology Program Curriculum, Laboratory Policies and How the Radiographic Procedures 1 Course Works. Preliminary Steps in Radiography, Radiography as a profession. (Procedures Lecture) • How to view X-rays & image analysis guidelines. (Critique Lecture) • Basic orientation to X-Ray Labs & Lab Groups, D2L Course Materials & Assignments, Student Handbook, Laboratory Safety Manuals & MRT Policies. (Laboratory Experiences)
2	Sept 10-14	1. Radiography Basics, Continued 2. Upper Extremity	<ul style="list-style-type: none"> • Practice Quiz Tuesday, September 11 on Orientation, Lab Manual & MRT Policies (This un-weighted quiz will be taken, scored, and reviewed <i>in class</i> to demonstrate testing procedures, question accessibility for review, and to familiarize students with D2L testing). • Applied skills in Radiography with reflective practice and considerations of patient interactions. Process development, terminology use & anatomic relationships. Begin upper limb lectures on positioning techniques for fingers, thumb, wrist, forearm, elbow, & humerus. • Low quality images, avoidable pitfalls, & troubleshooting. • Skill building for positioning lab success, common “best practices” for radiographic procedures, patient interactions & how to submit lab assignments using upper limb procedures experiences.
3	Sept 17-21	2. Upper Extremity, Continued	<ul style="list-style-type: none"> • Module 1 Quiz – Radiography Basics on Tuesday, September 18. • Continue upper limb lectures on positioning techniques for fingers, thumb, hand, wrist, forearm, elbow, & humerus. • Radiographic critique of the upper limb. • Continue procedure labs for upper extremities, Lab submission required for marks before Friday, September 21 @ 4:20 PM.

Week	Dates	Lecture/Module	Topics, Quizzes, Assignments
4	Sept 24-28	3. Shoulder Girdle	<ul style="list-style-type: none"> • Module 2 Quiz – Upper Extremity on Tuesday, September 25. • Shoulder girdle lectures on positioning techniques for the shoulder joint, clavicle, and scapula. • Radiographic critique of the shoulder girdle. • Procedure Labs for the shoulder girdle. Lab submission required for marks before Friday September 28 @ 4:20 PM.
5	Oct 1-5	4. Lower Extremity	<ul style="list-style-type: none"> • Module 3 Quiz – Shoulder Girdle on Tuesday, October 2. • Lower limb lectures on positioning techniques for toes, feet, ankle, lower leg, knee, and femur. • Radiographic critique of the lower extremity. • Procedure Labs for the lower limb. Lab submission required for marks before Friday, October 12 @ 4:20 PM.
6	Oct 9-12 <i>(Oct 8 Thanks-giving)</i>	4. Lower Extremity, Continued	<ul style="list-style-type: none"> • NO Quiz week 6. • Continue lower limb lectures on positioning techniques for toes, feet, ankle, lower leg, knee, and femur. • Radiographic critique of the lower extremity. • Procedure Labs for the lower limb. Lab submission required for marks before Friday, October 12 @ 4:20 PM.
7	Oct 15-19	5. Pelvis & Upper Femora	<ul style="list-style-type: none"> • Module 4 Quiz – Lower Extremity on Tuesday, October 16. • Pelvis & upper femora lectures on positioning the hip, pelvis, including special pelvic views and trauma considerations. • Radiographic critique of the lower extremity. • Procedure Labs for the hip & pelvis. Lab submission required for marks before Friday, October 19 @ 4:20 PM.
8	Oct 22-26	6. Bony Thorax	<ul style="list-style-type: none"> • Module 5 Quiz – Pelvis & Upper Femora on Tuesday, October 23. • Bony thorax lectures on positioning the sternum, SC joints, and ribs. • Radiographic critique of the bony thorax. • Procedure Labs for the bony thorax. Lab submission required for marks before Friday, October 26 @ 4:20 PM.
9	Oct 29 – Nov 2	7. Thoracic Viscera	<ul style="list-style-type: none"> • Module 6 Quiz – Bony Thorax on Tuesday, October 30. • Thoracic Viscera lectures on positioning the chest and mediastinum. • Radiographic critique of the chest. • Procedure Labs for the chest. Lab submission required for marks before Friday, November 2 @ 4:20 PM.

Week	Dates	Lecture/Module	Topics, Quizzes, Assignments
10	Nov 5-9	8. Vertebral Column	<ul style="list-style-type: none"> • Module 7 Quiz – Thoracic Viscera on Tuesday, November 6. • Vertebral column lectures on positioning the spine. • Radiographic critique of the spine. • Procedure Labs for the spine. Lab submission required for marks before Friday, November 16 @ 4:20 PM.
11	Nov 13-16 <i>(Nov 12 Remembrance Day)</i>	8. Vertebral Column, Continued	<ul style="list-style-type: none"> • No Quiz week 11. • Continue Vertebral column lectures on positioning the spine. • Radiographic critique of the spine. • Procedure Labs for the spine. Lab submission required for marks before Friday, November 16 @ 4:20 PM.
12	Nov 19-23	9. Abdomen	<ul style="list-style-type: none"> • Module 8 Quiz – Vertebral Column on Tuesday, November 20. • Abdomen lectures on positioning the abdominal viscera without contrast. • Radiographic critique of the abdomen. • Procedure Labs for the abdomen. Lab submission required for marks before Friday, November 23 @ 4:20 PM.
13	Nov 26-30	10. Digestive System	<ul style="list-style-type: none"> • Module 9 Quiz – Abdomen on Tuesday, November 27. • Digestive System lectures, fluoroscopy examinations, patient preparation for contrasted studies. • Radiographic critique of the abdomen. • Procedure Labs for the abdomen. Lab submission required for marks before Friday, November 30 @ 4:20 PM.
14	Dec 3-7	Wrap Up & Review	<ul style="list-style-type: none"> • Module 10 Quiz – Digestive System on Tuesday, December 4. • Wrap Up & Final Exam Review. • Cumulative review of radiographic critique. • Applied skills practical laboratory demonstration final assessment.
15	Dec 10-14, 17 & 18	FINAL EXAM PERIOD	Cumulative examination of all 10 Modules, Critique & Lab experiences.

Exam Period Dec.10-14 (scheduled by registrar) - check CAMLINK.

Do not book trips until the final exam schedule is posted by the registrar.

6. Grading System

The following two grading systems are used at Camosun College. This course will use:

- Standard Grading System (GPA)
- Competency Based Grading System

Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+	Minimum level of achievement to use the course as a prerequisite.	3
60-64	C		2
50-59	D	Minimum level of achievement for which credit is granted.	1
0-49	F	Minimum level has not been achieved.	0

Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy E-1.5 at camosun.ca for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	<i>Incomplete:</i> A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or
IP	<i>In progress:</i> A temporary grade assigned for courses that, due to design may require a further enrollment in the same course. No more than two IP grades will be assigned for the same course. (For these courses a final grade will be assigned to either the 3 rd course attempt or at the point of
CW	<i>Compulsory Withdrawal:</i> A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum,

7. Recommended Materials or Services to Assist Students to Succeed Throughout the Course

CONDUCT POLICIES

It is the student's responsibility to become familiar with the content of these policies. The policies are available in each School Administration Office, Registration, and on the College web site in the Policy Section.

[Academic Policies and Procedures](#)
[Student Conduct Policy](#)

LEARNING SUPPORT AND SERVICES FOR STUDENTS

There are a variety of services available for students to assist them throughout their learning. This information is available in the College Calendar, Registrar's Office or the College web site at

<http://www.camosun.bc.ca>

MRT PROFESSIONAL CODE OF ETHICS

Camosun College Medical Radiography Technology students are expected to abide by the Canadian Association of Medical Radiation Technologist (CAMRT) Code of Ethics inasmuch as it applies to them in the learning and clinical environments. This information is available on the CAMRT website at:

[CAMRT Code of Ethics](#)

MRT Department Policies & Procedures

Camosun College Medical Radiography Technology students are responsible for knowing all of the MRT Department Policies and must abide by them, including dress codes & lab safety procedures.

<http://camosun.ca/learn/programs/mrt/handbook.pdf>

8. GENERAL INFORMATION

Suggested Study Time/Study Habits

- Successful students will probably spend 6 – 14 hours outside of class per week studying the content for this course to achieve full marks.
- The instructor and instructional assistant will be available during the scheduled “open lab” hour for students needing additional support mastering the course content.
- Map out a homework schedule; include time for reading and workbooks.
- It is valuable to review your notes within 24 hours following each class to help retain the information.
- Study groups are a highly effective way of learning for many students.

Attendance

- Each student is required to read the X-ray Laboratory Safety Manual and sign an X-ray Laboratory Safety Contract and give it to the instructor or instructional assistant prior to commencing laboratory work in the course.
- Students are expected to be **on time**; tardiness disrupts the class. When students are more than 5 minutes late (and/or the classroom door is shut), they cannot enter the classroom until the class break period.
- If you choose not to **or** are unable to attend lecture it is your responsibility to acquire **all** information given during a class missed, incl. notes, hand-outs, assignments, changed exam dates etc.
- Missed exams or quizzes cannot be made up except in case of documented illness (doctor’s note required).

The Medical Radiography Technology program is committed to promoting competence, professionalism and integrity in our students and developing their core skills to succeed throughout their academic programs and in their careers. The purpose of Academic Honesty Guidelines is to provide clear expectations of appropriate academic conduct and to establish processes for discipline in appropriate circumstances. It is the student’s responsibility to become familiar with the content and the consequences of academic dishonesty. Before you begin your assignments, review the Academic Policies on the Camosun College website:
<http://camosun.ca/learn/becoming/policies.html>



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