A POLYTECHNIC INSTITUTION

Course Outline

School of Health Sciences
Program: Medical Radiography Technology
Option:

MRAD 1106
Radiographic Procedures 1

Start Date:	January, 2003			**End Date:**	April, 2003		
Total Hours:	150	**Total Weeks:**	15	**Term/Level:**	1	**Course Credits:**	10
Hours/Week:	10	**Lecture:**	4 **Lab:** 6	**Shop:**		**Seminar:**	**Other:**

Prerequisites

Course No.	Course Name

MRAD 1106 is a Prerequisite for:

Course No.	Course Name
MRAD 2216	Radiographic Procedures 2
MRAD 1108	Clinical Education 1

Course Description

This course introduces the field of radiography including the principles and terminology of imaging procedures. Emphasis will be placed on patient preparation and care as well as positioning and techniques for examinations of upper and lower extremities, pelvis, chest and abdomen. The course also covers all factors affecting radiographic technique and quality. Skills to evaluate the diagnostic and technical acceptability of the radiographs for each of the respective areas will be developed. Labs will reinforce the theoretical components of the course.

Detailed Course Description

Course Goals

- To introduce students to the field and practice of radiography.
- To understand radiographic and patient care procedures necessary to carry out required positioning of upper and lower extremities, pelvis, chest and abdomen.
- To become familiar with basic radiographic positioning principles and medical terminology.
- To develop skills necessary to competently critique radiographs of anatomical positions covered.
- To understand the application of technical and physical principles affecting the radiographic image.
- To develop skills to competently discern diagnostic film quality.
- To develop skills to adjust technical factors for optimum quality radiographs.

Evaluation

Weekly quizzes	8%	All laboratory exercises and Video project must be satisfactorily completed for a course mark to be received. *As per BCIT Policy, late assignments will not be accepted for marking.* 60% is the required pass mark in this course
Midterm exams Lecture (2 @ 10% ea)	20%	
Film Critique (2 @ 10% ea)	20%	
Video Project	10%	
Laboratory (Positioning)	7%	
Final Exams Film Critique	15%	
Lecture	20%	
TOTAL	100%	

■ Course Learning Outcomes/Competencies

Upon successful completion the student will be able to:

(Each of the following statements are identified with the relevant Critical Task for Competency (CT) according to the CAMRT publication January 1997)

1.	describe basic radiographic principles, basic patient positions and radiographic projections	CT A4
2.	describe the anatomical landmarks and how they relate to the specific positions	CT A4
3.	describe differences in patient body habitus and how it relates to specific positioning requirements	CT A4
4.	explain the basic technical requirements of radiographic examinations	CT A5
5.	identify specific KV ranges as they relate to various anatomical areas	CT A5
6.	in the lab, perform basic radiographic positioning of the upper extremity, lower extremity, pelvis, chest and abdomen	CT A4
7.	explain the relationship between patient position and resultant image	CT A7
8.	identify on radiographs the specific anatomical structures demonstrated, and evaluate for technical quality and diagnostic acceptability	CT A7
9.	offer solutions for correction of technical and position errors	CT A7
10.	explain the influence of varying patient types and technical factors on the radiographic image	CT A7

■ Verification

I verify that the content of this course outline is current.

Authoring Instructor — Dec 02, 2002 — Date

I verify that this course outline has been reviewed.

M. Filipelli — Program Head/Chief Instructor — Dec 2/02 — Date

I verify that this course outline complies with BCIT policy.

Dean/Associate Dean — Date

Note: Should changes be required to the content of this course outline, students will be given reasonable notice.

Instructor(s)

Valerie Palm, ACR, MEd Office Location: SW3-4077
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Office Phone: 604-412-7531
E-mail Address: valerie_palm@bcit.ca

Learning Resources

Required:

- PhilipW. Ballinger ***Merrill's Atlas of Radiographic Positions and Radiologic Procedures 9th Edition***
- McQuillen – Martensen (1996) ***Radiographic Critique***
- MRad 1106 Student Lecture / Laboratory Manual – **Radiographic Procedures 1**
- MRad 1106 Positioning Book - **Pocket Inserts**
- MRad 1106 Web site

Recommended:

- Bushong, S., Radiologic *Science for Technologists, 6th Edition*
- Cullinan, A.M., *Producing Quality Radiographs, 2nd Edition*

Information for Students

Assignments: Late assignments, lab reports or projects will **not** be accepted for marking. Assignments must be done on an individual basis unless otherwise specified by the instructor.

Makeup Tests, Exams or Quizzes: There will be **no** makeup tests, exams or quizzes. If you miss a test, exam or quiz, you will receive zero marks. Exceptions may be made for **documented** medical reasons or extenuating circumstances. In such a case, it is the responsibility of the student to inform the instructor **immediately**.

Ethics: BCIT assumes that all students attending the Institute will follow a high standard of ethics. Incidents of cheating or plagiarism may, therefore, result in a grade of zero for the assignment, quiz, test, exam, or project for all parties involved and/or expulsion from the course.

Attendance: The attendance policy as outlined in the current BCIT Calendar will be enforced. Attendance will be taken at the beginning of each session. Students not present at that time will be recorded as absent.

Illness: A doctor's note is required for any illness causing you to miss assignments, quizzes, tests, projects, or exam. At the discretion of the instructor, you may complete the work missed or have the work prorated.

Course Outline Changes: The material or schedule specified in this course outline may be changed by the instructor. If changes are required, they will be announced in class.

Assignment Details

See manual. To be reviewed in class.

MRad 1106 Itinerary: January – April 2003

Week	Lectures **Mon** – 1130 **Wed** – 0830 **Thurs** – 1530 **Fri** - 1530	Positioning Lab Set A – Mon PM Set B - Tues AM Set C - Tues PM	Film Labs Set A – **Wed & Thurs** Set B – **Tues & Thurs** Set C – **Wed & Thurs**	Applied Lab Set A – Wed Set B – Thurs Set C – Wed
Jan 6 - 10	**M** - Cancelled **W** - Course overview & Basic Radiographic Considerations ▪ Pg A-1 **T** – Documentation / Preparation for the Examination ▪ A-2 – A- 7, A – 15 **F** - Prepare for role play ▪ A-11 – 13	#1 Positioning Lab orientation Blue 1 – 10 Equipment orientation H 1 – 8 *Hand in H3 – 7* **Daylight**	1. Overview of film lab area & Intro to Radiographic Image ▪ J – 1 2. How to view a radiograph ▪ J - 3	Applied Lab Overview, ▪ Format & expectations ▪ Types & sizes of films / cassettes I 1 – 2 ▪ Film ID systems I 3 – 4 ▪ Marker use I 5 – 6 ▪ Personal film file envelopes
Jan 13 – 17	**M** – Intro to upper extremities ▪ B 1 – 3 **W** - Beam Geometry ▪ A 8 – 10 **T** – Fingers ▪ B - 7 **F** – Thumb ▪ B - 15	#2 Role Playing H 15 – 17 **Darkroom**	1. How to critique a radiograph (10 basic steps) ▪ J 4 – 5 2. View films demonstrating various aspects of film critique Complete critique forms in groups for feedback – no marks; ▪ J 7 – 8	Effects of SID I 7 – 9

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Jan 20 – 24	M – Hand ▪ B - 23 W - Intro Basic Exposure techniques ▪ A – 17 T – Wrist ▪ B - 31 F –Scaphoid ▪ B – 43 *Hand in A 23- 24 by Jan 23*	#3 Fingers, Thumb, Hand ▪ Ref H 18 – 20 **Daylight**	**1. Quiz** – film critique criteria & introduction to radiography 2. Critique - ▪ Fingers, thumbs, hands	Angled Beam geometry ▪ I 11 – 13
Jan 27 – 31	M – Recorded detail – J-13 – 14 & Bit Charts A – 20 & HO **W – Lecture Midterm 1** Up to & including - scaphoid, detail, & bits introduction T – Forearm & Elbow ▪ B – 47 F – Elbow : B 51	#4 Wrist & Scaphoid Ref - H 18 - 20 **Darkroom**	**1. Quiz** – fingers, thumbs, hand Critique ▪ wrist & scaphoid	Fingers, thumbs, hands

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Feb 3 – 7	M – Review Lecture midterm 1; Elbow cont'd W –Humerus B – 65 T – Humerus cont'd Radiographic contrast; ▪ J 9 - 11 midpoint check F – Peds & Geriatric considerations for upper & lower extremities ▪ B – 73 - 75	#5 Forearm & Elbow Ref H 18 – 20 **Daylight**	1. **Quiz** – wrist & scaphoid Critique ▪ forearm & elbow	Wrist & scaphoid
Feb 10 – 14	M – Radiographic Quality – J 15 ; Intro to Lowers – ▪ C 1 – 3 W – Toes – C – 7 T – Feet - C – 15 F – Video project info session ▪ G – 1 – 10	#6 Humerus Ref H 21 – 23 Mini – clinic orientation **Darkroom**	1. **Quiz** – forearm & elbow Critique ▪ Humerus 2. **FILM Midterm 1** – up to and including elbow	Forearm & elbow

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Feb 17 – 21	M - bit charts – HO W – calcaneus – C – 33 & 31 T – ankle C – 23 F – ankle cont'd *B 77 – 80 due Feb 20* ***2nd practice Upper extremities due Feb 21***	#7 New Room Orientation H 9 – 13 *(Hand in)* Toes & Foot Ref H 24 – 26 **Daylight**	**1. Review Film midterm 1** **2. Quiz** – Humerus Critique ▪ toes & feet	Humerus
Feb 24 – 28	M – tib - fib C – 35 W - Knee C – 39 T – Knee cont'd F – Sample Video's for Project	#8 Ankle & Calcaneus Ref H 24 – 26 **Darkroom**	**1. Quiz** – toes & feet Critique – ▪ ankle & calcaneus	Toes & feet
Mar 3 – 7	M – Technique charts HO W — **Lecture Midterm 2** Forearm to knee, Peds & Geriatrics, contrast, bits T - Patella & Notch C – 51 F – Femur - C – 57 *Video envelopes available Mar 3*	#9 Tib – Fib & Knee Ref H 24 – 26 Mini- clinic **Daylight**	**1. Quiz** – ankle & calcaneus Critique ▪ Tib-fib & Knee **2. FILM Midterm 2** – humerus to knee	Ankle & calcaneus

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	Mon – 1130 **Wed** – 0830 **Thurs** – 1530 **Fri** - 1530	Set A – Mon PM Set B - Tues AM Set C - Tues PM	Set A – **Wed & Thurs** Set B – **Tues & Thurs** Set C – **Wed & Thurs**	Set A – Wed Set B – Thurs Set C – Wed
Mar 10 – 14	Spring Break			
Mar 17 – 21	**M – Review Lecture Midterm 2** W – Bit problems revisited T – Intro to Pelvis : D 1 & ▪ Pelvis D – 5 F – SI jnts – D – 7 ▪ Peds considerations D – 13	#10 Intercondylar notch, Patella & femur Ref H – 24 – 26 & H 27 – 29 **Darkroom**	1. **Review Film Midterm 2** 2. Critique ▪ Notch, patella & femur	Tib-fib & knee
March 24 – 28	M – Intro to Chest E 1 – 4 W – Chest E 7 - 13 T – Chest cont'd ▪ Peds considerations E – 15 F – Technique considerations *C 61 – 65 due Mar 27* ***2nd practice Lower Extremities due Mar 28***	#11 Pelvis & SI jnts H – 27 – 29 Mini clinic **Daylight**	1. **Quiz** – Notch, patella & femur 2. Critique ▪ Pelvis & SI jnts	Notch, patella, femur

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Mar 31 - Apr 4	M – Intro to Abdomen – F 1 – 5 W – Abdomen – F – 9 T – Abdomen cont'd F – Peds considerations ▪ F 21 – 23 *D 15 – 16 due Apr 3* ***3rd practice Uppers, Lowers and 2nd practice Pelvis & SI jnts due Apr 4***	#12 Chest Ref – H 21 – 23 **Darkroom**	**1. Quiz:** Pelvis & SI jnts Critique : Chest	Pelvis, SI jnts & Chest
April 7 – 11	M – Rad eval review W – Technique considerations T – review and Prep for exam F – classes held if indicated **Video Project due April 8** *E 17 – 19 due Apr 10* *(F 25 – 27 – Do NOT hand in)* ***3rd practice Pelvis & SI jnts & 2nd practice Chest & Abdomen due Apr 11***	#13 Abdomen H 27 – 29; H –30; H 21 – 23; Mini- clinic **Daylight**	**1. Quiz:** Chest Critique: ▪ abdomen 3. **Final Film EXAM** – **all inclusive, cumulative**	Chest & Abdomen
April 14 – 18	**Level One - Exam Week** **1106 Lecture Final – All inclusive, cumulative** *(April 18th - Good Friday - no exams)*			