



A POLYTECHNIC INSTITUTION

School of Health Sciences

Program: Medical Radiography

Option:

**MRAD 4404/4405/4406**  
**Clinical Education**

**Start Date:** 4404 June 1, 2006  
4405 September 1, 2006  
4406 January 2, 2007

**End Date:** August 31, 2006  
December 29, 2006  
March 31, 2007

Reading Break: December 25, 2006 – January 1, 2007

**Total Hours:** 37.5 **Total Weeks:** 44 **Term/Level:** 4 / 5 / 6 **Course Credits:** 22 / 27 / 21  
**Hours/Week:** based on a 7.5 work day (excluding breaks)

**Prerequisites:**

**Course No.**      **Course Name**  
Successful completion of Level 3

**MRAD 4400/5500/ is a Prerequisite for:**

**Course No.**      **Course Name**  
Successful completion of the Medical Radiography program

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**Course Description**

This ten consecutive month course is designed to provide students with practical experience in all areas of medical radiography. Students will gain this experience under the supervision of the clinical instructor and staff technologists in assigned clinical facilities. At the end of this course, in addition to demonstrating a high standard of professional behaviours, students will have developed into a competent technologists, able to meet the radiographic requirements of any general radiographic imaging department.

**Course Learning Outcomes/Competencies**

The course outcomes correspond with the published CAMRT competency profile.

Upon successful completion, the student will be able to:

1. provide safe care for all patients.
2. consistently apply satisfactory positioning and technique skills that result in diagnostic films.
3. carry out radiation safety precautions for all patients, staff, and self as designated by provincial and national radiation protection codes.
4. handle the required equipment in a competent manner.
5. prepare the radiographic room for all examinations to be done.
6. keep the work area clean and stocked.
7. judiciously use the material resources.
8. communicate effectively with all individuals with whom he/she has contact.
9. interact appropriately with all members of the health care team.
10. document information as necessary for each procedure undertaken.
11. competently critique all radiographs.
12. organize and perform work efficiently while working as an effective team member.
13. carry out the organizational policies and procedures of a department of radiology (Imaging Dept.).

*Posted on  
web CT &  
distributed  
to students  
prior to start*

## Grading and Evaluations

This course has a grade of Satisfactory or Unsatisfactory. All clinical requirements must be satisfactorily achieved in order to achieve a BCIT diploma in Medical Radiography which is a requirement for the CAMRT national registry exam.

In order to receive a **satisfactory** standing, the student must:

- achieve the volume and quality of the Record of Clinical Experience requirements.
- achieve satisfactory formative evaluations.
- demonstrate professional behaviours and practice.
- successfully complete a project consistent with BCAMRT/CAMRT competition requirements.

A student may be considered to have an **unsatisfactory** standing if:

- the volume and quality of the Record of Clinical Experience requirements are not met.
- formative evaluations are not satisfactory.
- improvement strategies do not result in meeting of term objectives.
- difficulty is demonstrated with the academic portion of the training.

All situations resulting in an unsatisfactory standing will be reviewed with the student. In order to assist the student in succeeding, additional tasks and strategies will be assigned to students who are unable to successfully achieve the requirements. An unsatisfactory standing will be given upon consultation with the clinical site, clinical coordinator and program head. Improvement strategies must have been attempted and documented prior to assigning an unsatisfactory standing. A student must clear all unsatisfactory objectives by the end of each clinical term.

### Formative Evaluations

Students will be evaluated on their overall clinical skills on an ongoing basis using the formative evaluation forms. These skills include technical, patient care and interpersonal and professional behaviours.

Evaluations are generally done every two (2) weeks for Level 4 and then monthly for Levels 5 and 6. Additional formative evaluations are completed when students start a new area or at the discretion of the CI. This formative evaluation can be used over a period of time (1 day or 1 week) or for a specific rotation.

In consultation with the clinical instructor, students will request technologists to complete the formative evaluations. Each attribute on the assessment form will be marked by 1 - 4 indicating the consistency of a skill or behaviour. On the bottom of the form is the grading scheme which determines the outcome of the assessment.

Additional assessments will be completed in the event of unsatisfactory evaluations. Failure to improve will result in intervention by the clinical coordinator/program head.

### Record of Clinical Experience and Competence

This record is an ongoing portfolio of student's abilities and competencies. The *Record* is divided into competency and radiographic critique logs of anatomical and radiographic specialty areas as well as sections for quality control, patient care and professional deportment. All entries in the Record of Clinical Competency must be completed and should demonstrate a variety of case types before it will be signed by the Clinical Instructor and submitted to the Program Head to signify completion of the program. The cases entered in the record must be done unassisted and be of superior quality.

#### Competency Critique Log

Competency assessments are completed by the CI or designate and are based on the clinical competency evaluation objectives found in the Record of Clinical Experience as well as in the Student Policy Manual. Competencies must be designated as satisfactory and must demonstrate a variety of case types. If any competencies are deemed unsatisfactory, an additional entry will be added to the Record in order to document the required Satisfactory competencies. Failed competencies will also be further documented on the clinical competency evaluation form in order to provide additional feedback. In order to attempt a competency, students should have completed 50% of the required radiographic critiques for the specific anatomical area.

The specific volume requirement for each Level is a minimum:

- Level 4 - minimum of 5% of the total required competencies to be satisfactorily completed.
- Level 5 - minimum of 30% of the total required competencies to be satisfactorily completed.
- Level 6 - 100% of the required competencies to be satisfactorily completed.

### **Radiographic Critique Log**

Cases entered in the Radiographic Critique Log of the Record are not required to be done with the CI, but can be done with an RTR. Cases entered must be of superior diagnostic quality in order to be acceptable and will be reviewed with the CI or via the BCIT online radiographic critique process. Of the required cases, it is recommended that a minimum of one case in each anatomical area be submitted to BCIT using the online process. Students should complete 50% of the required radiographic critiques before attempting a competency in that specific area.

The specific volume for each Level is a minimum of:

- 25% of the total required completed by the end of Level 4
- 65% of the total required completed by the end of Level 5
- 100% completed by the end of Level 6.

### **Quality Control Section**

Exposure to the required tasks will be ensured by the end of Level 6.

### **Patient Care Section**

Assessments for this section of the *Record* will be ongoing during competency assessments and a final assessment will be entered in the *Record* at the end of Level 6.

### **Professional Deportment Section**

Assessments for this section of the *Record* will be ongoing during competency assessments and formative evaluations and will be documented in the *Record* at the end of Level 6.

### **Project**

Students will be responsible for submitting one project for assessment. The projects can be done on an individual basis or as a collaborative group. The project topic will vary significantly from site to site, but must relate to an advanced or new procedure or technology in medical radiography. Project guidelines are posted online and the project outline is part of the Level 4 grade and the completed project is submitted for the Level 5 mark. A grade of 70% must be achieved for successful completion of the project.

### **Summative Clinical Evaluations for Level 4/5/6**

These evaluations are compiled from the ongoing feedback received from the formative evaluations and the Record of Clinical Experience. Clinical Instructor recommendations are made on these evaluations submitted to BCIT at the end of each term.

#### **Department Orientation Evaluation**

This evaluation will be completed by the CI within the first month of Level 4 and submitted to BCIT with the Level 4 summary assessment.

#### **Level 4 Clinical Evaluation Summary**

This is a compilation of information from the formative evaluations and completed requirements of the Record of Clinical Experience and Competency. This summary will be submitted to BCIT and along with the submitted project outline will constitute the grade assessment of Level 4.

#### **Level 5 Clinical Evaluation Summary**

This is a compilation of information from the formative evaluations and completed requirements of the Record of Clinical Experience and Competency. The completed Level 5 summary will be submitted to BCIT and along with the submitted completed project and will constitute the grade assessment of Level 5.

#### **Level 6 Clinical Evaluation Summary**

This is a compilation of information from the formative evaluations and completed requirements of the Record of Clinical Experience and Competency. The completed Level 6 summary will be submitted to BCIT and along with the completed Record and will constitute the grade assessment of Level 6.

### **Class Time**

Students will be provided weekly class time of a minimum of two (2) hours. Topics or assignments that will be

covered during this time are:

- hospital/departmental/program operational business
- exams
- radiographic exam routines, positioning and technique
- equipment operation — radiographic and processing
- projects
- patient care
- interpersonal aspects of the student experience
- guest lectures from radiologists, senior techs, biomed, etc. (vary, depending upon individual site's resources)

## **Term 4/5/6 Examinations**

These exams are designed to assist students in maintaining academic standards and are reviewed and updated annually. Students attaining less than 70% on any exam will be required to spend remedial study time in that area and to demonstrate, to the instructor's satisfaction, mastery of the material. The exam schedule is available on the medrad clinical website.

The exams will consist of:

### **Radiographic Evaluation**

There are nine (9) REE's scheduled during the course of the year. These exams are mostly short answer questions and are designed to promote continued studying during the course of clinical education. The exams cover upper/lower extremities, shoulder girdle, pelvic girdle, thoracic cage, respiratory system, venous system, vertebrae, abdominal, digestive system, biliary system, urinary system, reproductive system, mobile, operating room and angiography.

### **Multiple Choice**

There are five (5) multiple choice exams scheduled during the course of the year. A list of competencies that the exam questions are based on will be supplied prior to the writing of the exam for study purposes. The composition of the exams are based on the published CAMRT competencies and what students have learned to date in the program and:

- the first one is made up of clinical questions (anatomy, pathology, patient care, positioning)
- the second one is entirely science questions (physics, apparatus, specialized imaging, QC, radiation biology, radiation protection, image recording)
- the third and fourth are a mixture of clinical and sciences questions
- the fifth is a mock final "achievement exam" given near the end of Level 6 and consists of two parts to reflect the certification exam writing experience.

## **Clinical Rotations**

The majority of a student's year will be spent gaining proficiency in general procedures. Students may repeat a clinical rotation in order to gain additional experience.

The four (4) general department rotations are:

- weekdays day shift
- afternoons (6 - 8 weeks)
- weekends (7 - 9 weekends – Sat and Sun)
- nights (8 - 10 shifts)

Students will also gain introductory knowledge of specialized areas by rotating through:

- special procedures
- CT (2 week rotation)
- MR (1/2 – 1 day where available and if student schedule permits)
- Mammography (3 – days)
- Angiography (1 - 2 days)

## Holidays, Overtime and Sick Time

Students are not required to work provincial and national statutory holidays. In addition, students are given time off over Christmas. Overtime (OT) will only be allowed at the discretion of the CI for the benefit of enhancing the student's clinical experience. All OT accrued in Level 4 must be taken by the end of Level 4 and all OT accrued during Level 5 must be taken by the end of Level 5. Any OT accrued in Level 6 must be taken by Feb 28th. Sick time (up to a maximum of five days) may be used as required (doctor's certificate may be requested for absences of 3 days or more). More than five (5) days sick time will be required to be made up at the end of Level 6.

## Withdrawal from Clinical Education

### Mandatory Withdrawal

Students will be withdrawn from the clinical environment if patient safety is an issue or if students are unable to physically engage and undertake all required activities. Example of grounds for withdrawal from clinical can be found in the student policy manual.

### Voluntary Withdrawal

Students may voluntarily withdraw from Clinical Education MRAD 4404/4405/4406. Counselling with respect to career choices is available to all students.

## Verification

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

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Authoring Instructor

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Date

I verify that this course outline has been reviewed.

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Program Head/Chief Instructor

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Date

I verify that this course outline complies with BCIT policy.

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Dean/Associate Dean

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Date

## Instructor(s)

Students will gain experience under the supervision of the instructor and hospital technologists. For contact information refer to the BCIT medrad website.

## Learning Resources

Required:

- Record of Clinical Experience
- program required textbooks
- Student Policy Manual
- Student Clinical Positioning Handbook

## Information for Students

**Attendance:** The attendance policy as outlined in the current BCIT Calendar will be enforced.

**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.

**Misconduct:** Students are expected to conduct themselves appropriately at all times. This applies to any institutional related activity on or off campus. Misconduct is defined as any action that is detrimental to the interest of the Institute or safety of others can be found on the BCIT website. If it appears to be a criminal matter, the Director of Safety and Security will be notified and consulted. All institute policies are available for review at <http://www.bcit.ca/about/administration/policies.shtml>.