BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY

Operating Unit: School of Health Sciences
Program: Medical Radiography
Option:

Course Outline

MRAD 3306
Radiographic Procedures 3

Start Date: January, 2000 **End Date:**

Course Credits: 4 **Term/Level:** 3

Total Hours: 64
Total Weeks: 8

Hours/Week: **Lecture:** 3 **Lab:** 5 **Shop:** **Seminar:** **Other:**

Prerequisites

Course No.	Course Name
MRAD 2204	

MRAD 3306 is a Prerequisite for:

Course No.	Course Name
MRAD 4400	Level 4 Clinical

Course Calendar Description

Course instruction will cover positioning techniques in combination with appropriate technical factors and imaging theory required to produce diagnostic skull radiographs. Students will also learn how to evaluate the diagnostic acceptability of skull radiographs. Labs will reinforce theoretical components of the course.

Course Goals

- To provide students with knowledge of positioning techniques for radiographs of the skull.
- To give students an understanding of the relationships among skull anatomy, beam direction and radiographic anatomy.
- To enable students to evaluate the diagnostic acceptability of skull radiographs.

Evaluation

Final Examination	40%
Mid Term	25%
Video	10%
Junior Video	5%
Quizzes	15%
Lab	5%
TOTAL	100%

All labs must be satisfactorily completed before a course mark will be given.

60% is considered as a pass.

Course Learning Outcomes/Competencies

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

Competency Profile		
A4	1.	list and locate the surface landmarks, localizing lines and planes of the skull.
A3–A5, A7	2.	describe the routine and specialized projections for the various aspects of the skull and be able to differentiate between them.
A4	3.	describe and discuss beam direction and centering points for the various views/projections of the skull.
A4, A5, D2	4.	demonstrate the ability to correctly position the patient for the required projections/views of the skull.
A4	5.	demonstrate the ability to adapt positioning in order to accommodate patient limitations
A3, A4, C1–C3, E2	6.	demonstrate the ability to integrate patient care, communication and organizational skills when positioning for skull views.
A3, A4, C1–C3, E2	7.	evaluate organizational, communication and positioning skills and provide appropriate feedback.
A7	8.	evaluate sample skull radiographs for diagnostic acceptability.
A7	9.	assess main contributing factors to the overall radiographic quality.
A7	10.	propose possible solutions to poor radiographic quality.
A5	11.	discuss formulas and relationships of the principles of radiography as they apply to mA time, kV and distance.

The course outcomes and suboutcomes correspond with the following competency profiles of the CAMRT (Dec. 96):

A3	Prepare the patient.
A4	Position the patient.
A5	Operate imaging equipment.
A7	Critique images and implement corrective measures.
C1	Ensure patient safety.
C2	Establish patient trust and confidence.
C3	Attend to the patient's physical comfort and needs.
D2	Monitor radiographic equipment.
E2	Demonstrate professional behaviour.

Course Content Verification

I verify that the content of this course outline is current, accurate, and complies with BCIT Policy.

Program Head/Chief Instructor

Date

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

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Instructor(s)

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Learning Resources

Required:

1. "Merrill's Atlas of Radiographic Positions and Radiologic Procedures" — 8th Edition — Volume 2.
2. Medical Radiography Positioning/Laboratory Manual —Level 3.

Recommended:

1. "Textbook of Radiographic Positioning and Anatomy" — Bontrager and Anthony.
2. "Radiography of the Skull and Brain" — DuPont.

BCIT Policy Information for Students

Assignment Details

Video projects have a new importance in Level 3. Skull procedures are not often done in the clinical area and therefore competence in this area of positioning is required prior to attempting it in the clinical area. In order to attempt to ensure competency, stringent regulations and marking have been adapted. It is the objective of this assignment to have each student practice his or her positioning skills prior to attempting the video project process.

The production of the video and marking will be as follows:

Video Assignment

- video cannot be repeated, however a new requisition envelope may be requested and a new video completed.
  - prior to receiving a new requisition, a completed self-evaluation form must be submitted on the first video, then new video project envelope will be issued.

- the envelopes are dated and numbered and must be completed prior to the next positioniing lab.
- the procedure must be completed within 30 minutes.
- the requisition envelope must be opened in front of camera and be recorded .
    - requisition must be completed with patient history, date and signature, etc.
- the camera must be recording from the time the envelope is opened until the conclusion of the video.
    - projects not adhering to this rule are considered *unacceptable.*
- details such as technique, cassette sizes and screen/film combinations can be recorded on video as a brief summary at the end of the video.
- emphasize that the patient should really "act" the part. This makes it far easier for you to role play as a technologist and makes the video project fun.
- instructor interviews must be booked at the completion of the video (i.e., booking must be done prior to next positioning lab however actual interview can take place anytime during the term).
- interviews can be booked with any instructor involved in 3306.
- **REMEMBER, DO NOT SPEAK TO THE CAMERA, but rather SPEAK TO THE PATIENT.**

Patient Feedback Form

- forms are to be filled out by the patient at the end of the video, placed in the envelope, sealed and returned to the student.
- please encourage patients to give honest and complete feedback.
- envelopes will be opened during the instructor interview and the patient's feedback will be reviewed.
- patient feedback will not be worth any marks.

Evaluation Forms

- forms must be completed, including comprehensive personal feedback prior to instructor review.
    - an X will be levied for incomplete documentation.
- there are no free X's.
- the marking scheme will be as follows:

PART A – GENERAL SKILLS
- an X will count as 1 mark off of the total mark.
- if an adequate analysis is made of the area receiving an X, only 1/2 mark will be taken off.

PART B

- an X in any one of the 4 areas listed under each projection/view will result in the loss of all marks for that entire view.
- if an adequate analysis is made of that view/projection, 2 marks can be earned back.

PART C

- an X in any one of the areas will result in a loss of marks for that entire section.
- if an adequate analysis is made, half the marks can be earned back.

MEDRAD VIDEO ASSIGNMENT

STUDENT: _____ SET: _____

TOTAL MARK: _____ /20

Use the evaluation criteria in your clinical manual as a guideline for acceptable standards for the video.

Watch your videotape carefully. Identify incorrect and correct aspects of the procedure by placing a ✓ or an ✗ in the grey shaded boxes in the S (student) column. **Justify your decisions on the lines provided.** If you recognize your error and provide a correct analysis, you will only lose a ½ mark.

A. GENERAL SKILLS

I	S	
☐	☐	**ROOM PREPARATION** Prepare room with all necessary supplies. _____ _____
☐	☐	**PATIENT IDENTIFICATION & COMMUNICATION** Interpret requisition accurately; correctly identify patient; instruct patient properly. _____ _____
☐	☐	**PATIENT PREPARATION & DISMISSAL** Obtain accurate history/assessment; assist patient appropriately (safety, privacy, etc.); remove extraneous items from patient (jewelry, etc.); ascertain probability of pregnancy (as required). _____ _____
☐	☐	**TECHNICAL FACTORS** Select suitable technical factors; select appropriate film/screen/grid; indicate appropriate factors and cassette size and type. _____ _____
☐	☐	**RADIATION PROTECTION** Collimate beam properly; shield patient appropriately; protection of self and others. _____ _____

MEDRAD VIDEO ASSIGNMENT

☐ ☐ **INHERENT SKILLS**

Select correct SID; utilize markers correctly; perform positioning efficiently (sequence, speed, etc.).

_____

_____

(SECTION A) MARKS /6

B. POSITIONING SKILLS

Identify if the technical aspects were correct for each view/projection by placing a ✓ or an ✗ beside each item. Indicate the view/projection on the line provided. Indicate the required CR direction and angulation and correct CP on the lines provided. If any of these aspects are incorrectly performed and would result in a repeat film, there will be a loss of the full 4 marks for that view/projection. If a correct analysis is provided, half marks will be assigned for that view/ projection.

VIEW/PROJECTION 1 _____

☐ ☐ **A** Correct centering point

☐ ☐ **B** Utilize correct CR angulation

☐ ☐ **C** Position patient correctly

☐ ☐ **D** Alignment (tube/part/film, etc.)

VIEW/PROJECTION 2 _____

☐ ☐ **A** Correct centering point

☐ ☐ **B** Utilize correct CR angulation

☐ ☐ **C** Position patient correctly

☐ ☐ **D** Alignment (tube/part/film, etc.)

VIEW/PROJECTION 3 _____

☐ ☐ **A** Correct centering point

☐ ☐ **B** Utilize correct CR angulation

☐ ☐ **C** Position patient correctly

☐ ☐ **D** Alignment (tube/part/film, etc.)

(SECTION B) MARKS /12

C. COMPREHENSION, EFFICIENCY & ORGANIZATION

☐ ☐ **COMPREHENSION**

Justification of why views were done the way you did them (i.e., order of views, manner in which views were done).

_____

_____

☐ ☐ **EFFICIENCY AND ORGANIZATION**

_____

_____

(SECTION C) MARKS /2

Upon completion and critique of an acceptable video, arrange to review video with an instructor. Hand in completed requisition and sealed patient feedback at this time. The instructor will review the video at that time and provide feedback in the box column marked I (Instructor) and through discussion.

Comments:

_____

_____

_____

_____

Video Feedback Assignment

Providing and receiving feedback is an important aspect of any career. Providing informal feedback to peers occurs on a regular basis.

It is important that feedback be given in a helpful manner. It is also important to recognize that for learning to occur, feedback must also contain suggestions for alternate methods of improvement.

The feedback assignment will consist of a Level 3 student providing feedback to a Level 1 student on the Level 1 student's video project. Names will be randomly drawn and the list of partners will be posted outside 4060.

Level 1 students will provide Level 3 students with their video and a feedback form. Level 3 students are to provide feedback in written and verbal form. Level 3 students are to provide Level 1 students with a feedback form regarding the interview. Level 1 students are to submit both of these completed forms during the instructor interview.

This assignment mark will be based on your feedback to the Level 1 student and the Level 1 student's feedback regarding the interview.

Level 3 students will also be asked to complete an interview feedback form on the Level 1 students. This is to be submitted to the instructor and general impressions will be discussed with the Level 1 student during the instructor interview.

Video Interview Feedback Regarding Level 1

COMPLETED FORMS TO BE GIVEN DIRECTLY TO THE INSTRUCTOR.

Level 3 Student: _____

Level 1 Student: _____

Check the appropriate box for the statement which best describes your experience in each section. Your comments will not affect the Level 1 student mark. Appropriate specific comments must be provided.

1. ☐ The Level 1 student sought me out for introductions and to make arrangements for the interview.

   ☐ I sought out the Level 1 student to introduce myself and to make arrangements for the interviews.

   Comment: _____

   _____

2. The Level 1 student was:

   ☐ approachable ☐ neutral ☐ unapproachable

   Comment: _____

   _____

3. The Level 1 student:

   ☐ attempted to accommodate my schedule
   ☐ made scheduling difficult

   Comment: _____

   _____

4. For the interview, the Level 1 student was:

   ☐ punctual ☐ a few minutes late ☐ very late

5. During the interview, the Level 1 student was:

☐ interested ☐ neutral ☐ disinterested

Comment: _____

_____

6. During the interview when alternate suggestions were given, the Level 1 student appeared:

☐ defensive ☐ accepting

Comments: _____

_____

7. How did you **feel** during the interview session? (You may check more than 1 box.)

☐ comfortable
☐ anticipatory
☐ uncomfortable
☐ humbling
☐ stressed
☐ knowledgeable
☐ bored
☐ Other _____

Comments: _____

_____

8. I thought my feedback to the Level 1 was:

☐ valuable
☐ overcritical
☐ not critical enough

Comment: _____

_____

9. I perceived that the Level 1 thought my feedback was:

☐ valuable
☐ overcritical
☐ not critical enough

Comment: _____

_____

Week No.	Dates	No. of Lectures & Topics	Lab Contents/Format	Notes
1	A/C Jan 4–7 B/D Jan 17–21	1. Course outline, skull intro, video assignment 2. Frontooccipital, occipitofrontal 3. Lateral skull & rad eval 4. Frontooccipital 15° Occipitofrontal 15° 5. AP, lateral & Caldwell rad eval (2 extra lectures from Applied lab and Film lab time slots)	POSITIONING: TOMOGRAPHY/QC Tomography of test phantoms Tomography of Chest or Pars Interarticularis Importance of Centring Safelight Test Collimator Test RAD EVAL LAB – extra lecture APPLIED LAB – extra lecture	Darkroom processing this week New lab partners No quiz Set A to do positioning lab during 2 hour Physics lab period. Safelight test can be done as a group. Importance of Centring can be a wrap project
2	A/C Jan 10-14 B/D Jan 24-28	Frontooccipital 30°, occipitofrontal 30° Submentovertical Sinuses	POSITIONING:BASIC SKULL Frontooccipital Occipitofrontal Lateral RADIOGRAPHY Petrous Scenario Lateral skull RAD EVAL LAB Frontooccipital Occipitofrontal Lateral Frontooccipital 15° Occipitofrontal 15° APPLIED LAB FO, OF, Lateral, FO15, OF15 No Quiz	Daylight processing this week Two rooms start radiography first to save the instructor running! We are taking the positioning slowly to begin until you grasp these new concepts Practice positioning in both the upright and recumbent positions Position either an AP/PA view with the baseline raised, and then figure out the correct CR angulation (Tip – try using the cervical collar) The petrous scenario should be completed The lateral skull should be tried if there is time

Week No.	Dates	No. of Lectures & Topics	Lab Contents/Format	Notes
3	A/C Jan 31-Feb 4 B/D Feb 14 - 18	1.- Sinuses 2.- Sinuses 3.-Sinuses/TMJs	POSITIONING: SKULL Frontooccipital 15° Occipitofrontal 15° Frontooccipital 30° Occipitofrontal 30° Submentovertical RADIOGRAPHY Reverse Caldwell's Scenario Basal view if time allows RAD EVAL LAB Frontooccipital 30° Submentovertical Sinuses QUIZ –FO,OF, Lateral APPLIED LAB FO30, OF30 & SMV	Darkroom processing week All views to be done on the table this week because next week is sinuses, so you will get upright practice then. Again place the OMBL off perpendicular and practice figuring out the correct CR angles. Remember to clean the tabletop surfaces prior to positioning.
4	A/C Feb 7-11 B/D Feb 21-25	1.-TMJs 2.-Midterm – 1st hour A/B 3.-Midterm – 2nd hour C/D	POSITIONING: SINUSES Caldwells Waters Lateral SMV (All upright with horizontal beam) RADIOGRAPHY Sinus scenario RAD EVAL LAB Sinuses QUIZ – FO30, OF30 & SMV APPLIED LAB Sinuses	Daylight Processing week. Each student to make anguliner triangle tool. Students to make a note of structures aligned when angle tool used for Waters and Caldwells. All views to be done upright with horizontal beam.

Week No.	Dates	No. of Lectures & Topics	Lab Contents/Format	Notes
5	A/C Feb 28- Mar 3 B/D Mar 6 - 10	Nasal Bones Mandible Mandible	POSITIONING: TMJs 35° Townes Transcranial TMJs RADIOGRAPHY TMJ Scenario Split 8x10 RAD EVAL LAB TMJs QUIZ - Sinuses APPLIED LAB TMJs	Darkroom Processing
	March 13-17	S P R I N G B R E A K		
6	A/C: Mar 20–24 BD: Apr 3–7	Zygomatic Arches Orbits Facial Bones	POSITIONING: Nasal Bones and Mandible S/I nasal bones (supine & erect) Axiolateral mandible ------True lateral ------Out of bucky - patient supine ------Trauma patient – x-table ------At upright bucky with head tilted RADIOGRAPHY Mandible Scenario RAD EVAL LAB Nasal Bones, Mandible QUIZ – TMJs APPLIED LAB Mandible	Daylight Processing

Week No.	Dates	No. of Lectures & Topics	Lab Contents/Format	Notes
7	A/C Mar 27-31 B/D Apr 10-14	Sella Turcica Mastoids IACs	POSITIONING: Tangential Inferosuperior Zygoma 25 – 30 Occipitofrontal orbits Modified parietoacanthial 55 to table Lateral facial bones RADIOGRAPHY Tangential zygoma on the dry skull Lateral facial bones RAD EVAL LAB Facial Bones QUIZ – Nasal Bones, Mandible APPLIED LAB Facial Bones	Darkroom Processing
8	Apr.17-21 All sets together	Review Review Review	POSITIONING: Tutorial RAD EVAL LAB Tutorial APPLIED LAB Tutorial	Daylight Processing