

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

SAULT STE. MARIE, ONTARIO



Sault College

COURSE OUTLINE

COURSE TITLE: X-Ray Theory and Techniques

CODE NO. : CHA103

SEMESTER: 2

PROGRAM: Chiropractic Health Assistant

AUTHOR: Nancy McClelland, Dr. Ted Luck

DATE: Jan/01

PREVIOUS OUTLINE DATED: Jan/00

APPROVED:

DEAN

DATE

TOTAL CREDITS: 2

PREREQUISITE(S): CHA100, CHA101

LENGTH OF COURSE: 2 Hours/Week

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*For additional information, please contact Judi Maundrell, Dean
School of Health and Human Services*

I. COURSE DESCRIPTION:

This course provides an overview of the theory of x-ray and x-ray technique. The student will learn to assist the Chiropractor with the taking and processing of x-rays in a clinical setting. This course will include class and a lab component that will include field visits to an X-Ray department.

II. LEARNING OUTCOMES AND ELEMENTS OF THE PERFORMANCE:

Upon successful completion of this course, the student will demonstrate the ability to:

1. Discuss highlights of the development of X-ray and X-ray technique as it pertains to Chiropractic.

Potential Elements of the Performance:

- a. Review the history and development of diagnostic imaging.
- b. Identify the historical use of X-rays and chiropractic.
- c. Define common terms used in X-ray.
- d. Identify and discuss the Chiropractic Health Assistant's role in diagnostic imaging in the field of Chiropractic.

2. Discuss the properties of X-rays, X-ray machines and X-ray films/cassettes used in Chiropractic practice.

Potential Elements of the Performance:

- a. Describe the basic properties of X-rays including penetration of solid objects, fluorescence and ionization.
- b. Explain the primary components of the X-ray machine.
- c. Explain fundamental properties of X-ray film/cassette.

3. Identify precautions required in assisting and preparing clients for radiation.

Potential Elements of the Performance:

- a. List and explain the potential harmful effects of X-rays.
- b. Discuss methods for reducing harmful effects of X-rays. (high KVP factors, X-ray tube housing, collimator, grid, high speed film, shielding, monitor badges, protective clothing, Q.A./control inspections, target to skin distance)

4. Discuss the purpose and types of X-rays used in Chiropractic practice.

Potential Elements of the Performance:

- a. Explain general implications for using X-rays in chiropractic practice.
- b. Discuss why Chiropractors take their own X-rays.
- c. List and describe typical X-ray studies done.
- d. Demonstrate appropriate positioning for typical X-rays.

5. Discuss the client preparation required for Chiropractic X-rays.

Potential Elements of the Performance:

- a. Identify steps involved in preparing a client for X-ray including: consent, privacy, disrobing, gowning, jewelry, dental work, glasses, hair accessories, warmth.
- b. Explain components of proper patient measurement.
- c. Review and practice client positioning, explaining the procedure and repositioning.
- d. Discuss helping client once X-ray is completed.

6. Identify the steps in processing X-ray film.

Potential Elements of the Performance:

- a. Review terminology used when processing X-rays
 - Equipment, lighting
 - Process for handling film/cassettes
 - Procedures
- b. Practice loading and unloading cassettes/films.
- c. Simulate/practice X-ray procedure/process.

7. Maintain accurate and complete records of X-ray procedures and results using appropriate terminology.

Potential Elements of the Performance:

- a. List the statistics written/recorded in the X-ray log book.
- b. View examples of X-ray reports.
- c. Discuss 'Quick Reading' X-ray analysis.
- d. Examine role of D.C. in explaining X-ray results to clients.
- e. Identify key elements of record keeping that are necessary for usefulness, safe, complete client care.

8. Identify the requirements for a healthy and safe work environment.

Potential Elements of the Performance:

- a. attitude
- b. positive self talk
- c. respect

9. Respond appropriately to guidance and direction from supervisor or senior team member.

Potential Elements of the Performance:

- a. Review essentials of good human relations and interpersonal skills.
- b. Demonstrate ability to take constructive feedback and improve performance.
- c. Develop methods for contributing in a positive way, to improve team functioning.

III. TOPICS:

- History of X-rays,
- X-ray Terminology
- Properties of X-rays, the X-ray Machine, and X-ray Film
- Radiation Precautions
- X-rays used in Chiropractic, with Patient Preparation and Positioning
- Assisting with taking the X-ray, use of Lead Shields
- X-ray Film Processing
- Referral and Collaboration with X-ray Radiologists and Technologists
- Record Keeping

IV. REQUIRED RESOURCES/TEXTS/MATERIALS:

Redwood, Daniel, D.C. (1997) Contemporary Chiropractic: Churchill Livingstone. New York:

Schafer, R.C., DC, FICC, (1991) The Chiropractic Assistant: The American Chiropractic Association. Arlington, Virginia

Haldeman, Scott. (1992) Principles and Practice of Chiropractic: Appleton and Lange . Norwalk, Connecticut

Reference Resources/Texts/Materials:

<http://www.ccachiro.org/cdninfo.ht> the Canadian Chiropractic Association Infosite

<http://www.jcca-online.com/index.html>: The Journal of the Canadian Chiropractic Association website

<http://www.mbnet.mb.ca/~jwiens/chiro3.sht> : The Chiropractic Page (Canadian)

<http://www.internets.com/chiropra.htm>: Chiropractic Search Engines website

<http://www.webgate.net/~welchiro/chiro.html>: Canadian chiropractic website

V. EVALUATION PROCESS/GRADING SYSTEM:

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| 3 term tests: # 1 on Learning Outcomes 1, & 2 | 20% |
| #2 on Learning Outcomes 3 & 4 | 20% |
| #3 on Learning Outcomes 5 & 6 | 20% |
| Practical report on field visit to X-ray department/facility | 15% |
| End of term test (covering all learning outcomes) | 25% |

GRADING SCHEME:

The following semester grades will be assigned to students in postsecondary courses:

| <u>Grade</u> | <u>Definition</u> | <u>Grade Point Equivalent</u> |
|--------------|---|-------------------------------|
| A+ | 90 - 100% | 4.00 |
| A | 80 - 89% | 3.75 |
| B | 70 - 79% | 3.00 |
| C | 60 - 69% | 2.00 |
| R (Repeat) | 59% or below | 0.00 |
| CR (Credit) | Credit for diploma requirements has been awarded. | |
| S | Satisfactory achievement in field placement or non-graded subject areas. | |
| U | Unsatisfactory achievement in field placement or non-graded subject areas. | |
| X | A temporary grade. This is used in limited situations with extenuating circumstances giving a student additional time to complete the requirements for a course (see <i>Policies & Procedures Manual – Deferred Grades and Make-up</i>). | |
| NR | Grade not reported to Registrar's office. This is used to facilitate transcript preparation when, for extenuating circumstances, it has not been possible for the faculty member to report grades. | |

VI. SPECIAL NOTES:

Special Needs:

If you are a student with special needs (e.g. physical limitations, visual impairments, hearing impairments, or learning disabilities), you are encouraged to discuss required accommodations with your instructor and/or the Special Needs office. Visit Room E1204 or call Extension 493, 717, or 491 so that support services can be arranged for you.

Retention of course outlines:

It is the responsibility of the student to retain all course outlines for possible future use in acquiring advanced standing at other postsecondary institutions.

Plagiarism:

Students should refer to the definition of “academic dishonesty” in *Student Rights and Responsibilities*. Students who engage in “academic dishonesty” will receive an automatic failure for that submission and/or such other penalty, up to and including expulsion from the course/program, as may be decided by the professor/dean. In order to protect students from inadvertent plagiarism, to protect the copyright of the material referenced, and to credit the author of the material, it is the policy of the department to employ a documentation format for referencing source material.

Course outline amendments:

The Professor reserves the right to change the information contained in this course outline depending on the needs of the learner and the availability of resources.

Substitute course information is available in the Registrar's office.

VII. PRIOR LEARNING ASSESSMENT:

Students who wish to apply for advanced credit in the course should consult the professor. Credit for prior learning will be given upon successful completion of a challenge exam or portfolio.

VIII. DIRECT CREDIT TRANSFERS:

Students who wish to apply for direct credit transfer (advanced standing) should obtain a direct credit transfer form from the Dean's secretary. Students will be required to provide a transcript and course outline related to the course in question.