

 <p>CAMOSUN COLLEGE</p>	<p style="text-align: center;">School of Health & Human Services Medical Radiography Technology</p> <p>Course Name: Relational Anatomy & Physiology 3 W2014</p> <p>Course Number: MRAD 246</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>

Please note:

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

Introduction:

This course is the last of three consecutive courses examining normal human structure and function. It is delivered in classroom format during the final academic term of the program.

Three approaches to anatomy are utilized in the Medical Radiography program: first, an examination of selected body systems, followed by a regional approach, relating components of these systems to nearby organs. Finally, the systems and regional viewpoints are integrated into a sectional imaging approach, viewing parts of the body in all three fundamental body planes, and in oblique planes where appropriate. Conventional anatomic presentations are supplemented by images obtained from a variety of diagnostic medical imaging technologies.

Physiology is presented where it is relevant to, and contributes to an understanding of structure, the relationships among adjacent organs, to fundamental body processes, functional diagnostic imaging procedures and important clinical considerations.

The course begins with an examination of the cardiovascular, lymphatic and respiratory systems. Switching to a regional approach the course focuses on the thoracic cavity, the contents of which are dominated by parts of the systems just examined. Sectional images in all three fundamental body planes, derived from multiple imaging modalities, are used to demonstrate thoracic structures and their functions. Organs displayed that are components of systems previously studied, or yet to be covered, will be described as they are encountered.

The course now turns to study of the head and neck, commencing as usual with a systems approach. The axial skeleton (skull and spinal column) are first examined, followed by the central nervous system (brain and spinal cord), emphasizing the intimate relationships between the two. The remaining part of the course focuses on the sectional anatomy of the head and neck using images in all three fundamental body planes and the more oblique transverse planes conventionally used when assessing the skull and brain.

Prerequisite: A minimum of "C+" in MRAD 125

Students must achieve a minimum of a C+ (65%) to use this course as a prerequisite.

1. Instructor Information

(a)	Instructor:	Rajesh Nair, BSc, MD	
(b)	Office Hours:	Monday, Tuesday and Thursday 1230-1320	
(c)	Location:	WT 212C	
(d)	Phone:	778-922-6247	
(e)	Email:	nairra@gmail.com	
(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. Identify the organs within the systems studied relative to the vasculature of the region. (H2.1, H3.1, K1.1, M1.1)
2. Relate structure to function of the cardiovascular, respiratory systems and the CNS. (H2.1, H3.1, K1.1, M1.1)
3. Describe the surrounding relationships of cardiovascular, respiratory, CNS and head/spine structures. (H2.1, H3.1, K1.1, M1.1)
4. Identify the level and orientation of vascular structures displayed in sectional images of the head and neck, thorax, abdomen, pelvis and limbs. (H2.1, H3.1, K1.1, M1.1)
5. Apply anatomical and physiological principles to diagnostic practices. . (K1.1, M1.1)
6. Apply knowledge of anatomy and physiology in the identification and interpretation of conventional X-ray images and CT scans in different body planes. (H2.1, H3.1, K1.1, M1.1)

3. Learning Resources

a. Required:

Marieb, E.N. Essentials of Human **Anatomy and Physiology**, 10th Edition, (Benjamin Cummings)
Applegate, E.J. **The Sectional Anatomy Learning System: Concepts**, 3rd Edition (Saunders)
Applegate, E.J. **The Sectional Anatomy Learning System: Applications**, 3rd Edition (Saunders)
Drake, R.L., Vogl, W., Mitchell, A., **Gray's Anatomy for Students**, Current edition (Elsevier, Churchill Livingstone)

b. Recommended (on reserve in library):

Basic Anatomy and Physiology

Tortora, G.J., **Principles of Anatomy and Physiology**, Current edition (Harper and Row)
Martini, F.H., Timmons, M.J., Tallitsch, R.B. **Human Anatomy**, Current edition (Prentice Hall)
Marieb, E.N. **Anatomy and Physiology Coloring Workbook**, 9th Edition, 2008 (Benjamin Cummings)

Advanced Anatomy

Moore, K.L., **Clinically Oriented Anatomy**, Current edition (Lippincott, Williams & Wilkins)
Warwick, R., Williams, P.L., Eds., **Gray's Anatomy**, Current edition (Longman)

Advanced Physiology

Berne, R.M., Levy M.N., Eds., **Physiology**, Current edition (Mosby)
Boron, W.F., Boulpaep, E.L., Eds., **Medical Physiology**, Current edition (W.B.Saunders)

Histology

Young P., Heath J.W., **Wheater's Functional Histology**, Current edition (Elsevier, Churchill Livingstone)

Imaging and Sectional Anatomy

Weir, J. Abrahams, P.H., **Imaging Atlas of Human Anatomy**, Current edition (Mosby)
Hofer, M., **CT Teaching Manual**, Current edition (Thieme Kelley, L.L., Petersen, C.M.),
Sectional Anatomy for Imaging professionals (Mosby)
Madden, M.E., **Introduction to Sectional Anatomy**, Current edition (Lippincott, Wilkins & Williams)

4. Student Evaluation

4 Midterm Exams	60%
Cumulative Final Exam	30%
Professionalism	10%
TOTAL	100%

Midterms are written in class via D2L and are **CLOSED BOOK!**

The final exam date will be scheduled by the registrar and is *cumulative*.

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>)

In this course, there is a 10% mark for professionalism. Behaviors that contribute to this mark include, but are not limited to: punctuality, respect, accountability, communication, curiosity, courtesy, responsibility, integrity and exercising sound judgment exemplary of an MRT.

It is your responsibility to acquire all information given during any missed class, including 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).

In case of illness or other unavoidable cause of absence, the student must communicate as soon as possible with his/her instructor indicating the reason for the absence. Prolonged illness of three or more consecutive days must have a medical certificate sent to the department.

5. Course Schedule - Tues & Thursdays 1530–1720

NOTE: This schedule is tentative and subject to change if deemed necessary by the instructor.

Week	Week of	Module	Topics and Quizzes
1	Jan 12	1.Organization of the nervous system	Neurons and Nerves
	Jan 14	2. Anatomy of the brain	Brain and cranial nerves

2	Jan 19	2. Anatomy of the spinal cord	Spinal cord and nerves Neural pathways Nerve conduction
	Jan 21	3. Protective Structures of the nervous system	Meninges, CSF and the Ventricles
3	Jan 26	3. Autonomic Nervous System	Sympathetic and Parasympathetic Nervous System
	Jan 28 Jan 28		Midterm 1: Modules 1, 2, & 3
4	Feb 2	4. The Eye 5. The Ear	Structure and Sensory Function
5	Feb 9 Feb 9	6. Sectional Anatomy of the Head and Neck	MRAD 240 – Quiz 2 Using CT and MRI images, we will study: Relational Anatomy of the lobes of the brain CSF and Ventricles/Carotids Circle of Willis Brachial Plexus Muscles of Head and Neck region
6	Feb 11 Feb 16 Feb 18	Reading Week (Online Content Only)	
7	FEB 23		
7	Feb 25	7. Cardiovascular System, Blood Vessels, & Cardiovascular Physiology	
8	Mar 1/3		Components of blood and their functions, Haemopoiesis Veins and Arteries: Structure and Function Systemic and Pulmonary circulation Branching Pattern of Major Systemic Arteries Phases of the Cardiac Cycle Stroke Volume Cardiac Output Ejection Fraction Conduction system ECG wave pattern Heart sounds Midterm 3: Module 7
9	Mar 8/10		
10	Mar 15		
	Mar 17		

17 18 19	Mar 22/24 Mar 29/31 Apr 5/7 Apr 12	8. Cardiopulmonary Physiology Relational Anatomy of the Vessels of the thoraco-abdominal cavity Upper & lower limbs	Mechanics of Ventilation Lung Volumes and Capacities Transport of oxygen and Carbon Dioxide in blood Factors controlling exchange of gasses in blood at the lungs and in tissues Recognize how vessels and organs change in appearance and location in a series of sections through the thoracic and abdominal cavities, as well as the upper and lower limbs Midterm 4: Module 8
	Apr 14	Course Review	
15	April 18/26	EXAM WEEK	

Exam Period May20-23, (scheduled by registrar) - check CAMLINK.

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

6. 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 death in the family.
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 course completion.)
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, worksite, or field placement.

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/documents/handbook.pdf>

8. GENERAL INFORMATION

Suggested Study Time/Study Habits

- Please turn OFF cell phones and texting devices when in class/lab.
- MRAD 246 will require regular study and preparation ahead of each class. It is valuable to review your notes within 24 hours following each class to help in retention of information. You should expect to spend at least 6 hours outside of scheduled class time in the preparation of answering on-line quizzes and for general studying. Study groups are a highly effective way of learning for many students.

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. Login 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.

Attendance

- **You are expected to attend all classes, and be on time.** It is your responsibility to acquire *all* information given during a missed class, including 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).
- **In case of illness or other unavoidable cause of absence, the student must communicate as soon as possible with his/her instructor indicating the reason for the absence.** Prolonged illness of three or more consecutive days must have a medical certificate sent to the department.
- **In this course, there is a 20% mark for professionalism.** Behaviors that contribute to this mark include, but are not limited to: attendance, punctuality, respect, accountability, communication, courtesy, responsibility, integrity and exercising sound judgment exemplary of an MRT.

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>