



**AMERICAN UNIVERSITY OF ANTIGUA
COLLEGE OF MEDICINE**

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Welcome Physiology Students!!!

*The American University of Antigua – College of Medicine and **The Department of Physiology** extend a warm welcome to you for the Academic period **JANUARY to APRIL 2009.***

We look forward to working with you while you pursue your academic goals.

*As is critical to your success, please see attached **Course Syllabus** for your perusal.*

Positively,

Dr. Reza. Sanii

Associate Dean of Student Affairs and Physiology Chair and Course Director

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**AMERICAN UNIVERSITY OF ANTIGUA
COLLEGE OF MEDICINE**

Dr. R. Sanii: Chair and Course Director
Dr. C Shekar
Dr. B. Nardell
Dr. D. Wade

MEDICAL PHYSIOLOGY

COURSE SYLLABUS (SPRING)

JANUARY – APRIL 2009

(6 credits)

Introduction:

The Medical Physiology course at A.U.A. College of Medicine is designed to introduce the second-semester medical student to the normal functioning of the human body. It is a basic medical science course intended to provide a solid understanding of the normal control systems of the body and how they function to maintain homeostasis. The course will provide students with a strong grasp of physiology principles, which will enable them to successfully complete their advanced medical science courses, pass the USMLE licensure examinations and better manage their patients.

Overall Objectives of the course:

1. To help students understand the basic concepts that explains the functions of major organ systems.
2. To prepare students to understand concepts presented in the third and fourth semesters that build upon physiological principle.
3. To provide students with the physiological concepts required in the practice of medicine.
4. To provide students with a solid understanding of physiological information required to pass the steps of the United States Medical Licensing Examination (USMLE).

Course Content:

The course covers the following areas:

- Cell and membrane physiology
- Skeletal, smooth and cardiac muscle
- Cardiovascular physiology
- Pulmonary physiology
- Renal physiology and Acid-Base balance
- Gastrointestinal Physiology
- Endocrine Physiology
- Fetal and Neonatal Physiology

These topics will be presented with **Lectures** and **Clinical Case Discussions**.

It has been our experience that the students are often unprepared for the level of integrative process and problem solving expected of them in this course.

We have adopted several approaches to help students' ability to adequately grasp the subject of medical physiology and pathophysiology. The lecture material will be presented using clinical cases whenever possible. Also, in each aspect of physiology, a series of case studies will be discussed. We have found that the most effective way of presenting this type of material is in the form of problem solving approach whose solutions help students to understand fundamental and basic physiology as well as disease process that underline them. Evidently, including these types of medical scenarios within the review sessions and lectures help students to appreciate the level to which they are expected to know the material.

Physiology Textbooks:

Recommended text:

1. A.C. Guyton and J.E. Hall - **Textbook of Medical Physiology** 10th Edition 2000, W.B. Saunders Company. ISBN 0-7216-8677-X

Alternative Textbooks:

1. R. A. Rhoades and G. A. Tanner - **Medical Physiology** 2nd Edition 2003, Lippincott Williams and Wilkins. ISBN: 0-316-74228-7
2. R. M. Berne and M. N. Levy - **Physiology** 4th Edition Mosby 1998 ISBN: 0-8151-0952-0
3. C. H. Best & N. B. Taylor - **Physiological Basis of Medical Practice** 12th Edition 1991, Williams and Wilkins. ISBN 0-683-08947-1

Recommended Physiology Review Textbooks:

1. D. E. Mohrman and L. J. Heller - **Cardiovascular Physiology** 5th Edition McGraw-Hill, Inc., 2003, ISBN: 0-07-1388864-8
2. J. B. West. **Respiratory Physiology – The Essentials** Williams and Wilkins.
3. A. C. Guyton & J. E. Hall - **Pocket Companion of Medical Physiology** 10th Edition W. B. Saunders Company. ISBN: 0-7216-8729-6
4. L. S. Costanzo - **Physiology** 2nd Edition 2002 W. B. Saunders Company

Handout:

Each faculty will provide a handout and /or additional reading materials. These materials are often supplemental to recommended text book. The handout also includes a list of objective that will be covered.

Examinations:

There will be a total of **4 MINI EXAMINATIONS** throughout the semester held at the completion of each section, and a **FINAL SHELF EXAMINATION** at the end of semester.

The overall final course grade will be calculated as follows:

Exam	% of final grade
Mini 1	20
Mini 2	20
Mini 3	20
Mini 4	20
Final (Shelf Examination)	20

- For the date, time and location of exams please consult your class schedule.
- Letter grading will be based on the American University of Antigua policy.
- Students should take note that no exam booklets will be allowed to leave the testing facility.
- Following each exam, our faculty will arrange a review session to go over the exam questions. Some faculty may give students an opportunity to go over the exam booklet to identify student's area of weaknesses.

Minimum Passing Grade:

- a) **Students MUST attain a minimum of "C" in the overall Final Grade AS WELL AS a minimum of "54%" in the Shelf Examination TO PASS Medical Physiology Course.**
- b) **Students who attain 64% in Shelf regardless of overall achievement WILL PASS the Course.**

Tutorials / Reviews:

Announcements will be made by the individual faculty members regarding the date and time for tutorials and reviews in consultation with the students. These sessions will not include new course material and attendance is optional.

Attendance:

Based on the American University of Antigua policy, **80% attendance is required** for all students registered in the course as a minimum for all classes.

Missed Examination:

No make-up examination will be given for missed examination(s). Students must make every effort to take the scheduled examination.

For detailed break down of objectives for each section please consult faculty folder available on library server (S. folder).

SUMMER SEMESTER SCHEDULE

January – April 2009

WEEK 1 (Jan 7-9)	Membrane Physiology & Muscle	
WEEK 2 (Jan12-16)	Cardiovascular Physiology Introduction 1 Cardiovascular Physiology Introduction 2 Cardiovascular Physiology Physiological Anatomy Cardiovascular Physiology Cardiac Cycle 1 Cardiovascular Physiology Cardiac Cycle 2 Cardiovascular Physiology Cardiac Cycle 3	
WEEK 3 (Jan 19-23)	Cardiovascular Physiology EKG 1 Cardiovascular Physiology EKG 2 Cardiovascular Physiology Vecto-Cardiogram Cardiovascular Physiology Cardiac Arrhythmia Cardiovascular Physiology Cardiac Arrhythmia 1 Cardiovascular Physiology Cardiac Arrhythmia 2	
WEEK 4 (Jan 26-30)	MINI EXAM 1 Membrane, Muscle Cardiovascular Physiology Homodynamic Cardiovascular Physiology Vascular Function Cardiovascular Physiology Cardiac Output Curve Cardiovascular Physiology CV Regulations Cardiovascular Physiology Heart Sounds Cardiovascular Physiology Cardiac Failure 1 Cardiovascular Physiology Cardiac Failure 2 Cardiovascular Physiology Cardiac Shock Cardiovascular Physiology Case Presentation	(Monday 26th Jan 2009)
WEEK 5 (Feb 2-6)	Respiration Physiology Introduction 1 Respiration Physiology Introduction 2 Respiration Physiology Lung Volumes Respiration Physiology Mechanics 1 Respiration Physiology Mechanics 2 Respiration Physiology Dynamics 1 Respiration Physiology Dynamics 2 Respiration Physiology Alveolar Ventilation	
WEEK 6 (Feb 9-13)	Respiration Physiology O ₂ , CO ₂ Transfer Respiration Physiology Gas Diffusion Respiration Physiology Vent / Perf Respiratory Physiology Control System Respiration Physiology PFT Lab	

WEEK 7
(Feb 16-20)

MINI EXAM 2 Cardiovascular
Renal Physiology Introduction 1
Renal Physiology Introduction 2
Renal Physiology Physiological Anatomy
Renal Physiology GFR1
Renal Physiology GFR2
Renal Physiology Blood Flow
Renal Plasma Flow Measurement
Renal Clearance

(Monday 16th Feb 2009)

WEEK 8
(Feb 23-27)

Renal Tubular Transport 1
Renal Tubular Transport 2
Renal Control of Blood Fluids / BP
Renal Control of [k+]
Renal Control of [Ca⁺⁺] & Phosphate
Renal Physiology Diuretics
Renal Acid – Base Control
Renal Physiology **Review 1 & 2**

WEEK 9
(Mar2-6)

Endocrine Physiology The Principle
Endocrine Physiology Mechanics of Hormone
Endocrine Physiology Hypothalamic-Pituitary Hormones
Endocrine Physiology Anterior Pituitary Hormones
Endocrine Physiology Posterior Pituitary Hormones
Endocrine Physiology Thyroid Gland

WEEK 10
(Mar 9-13)

MINI EXAM 3 Respiration & Renal
Endocrine Physiology Parathyroid
Endocrine Physiology Pancreas
Endocrine Physiology Pancreas abnormalities
Endocrine Physiology Adrenal Medulla
Endocrine Physiology Adrenal Cortex

(Monday 9th Mar 2008)

WEEK 11
(Mar 16-20)

Male Reproductive Physiology
Sexual Development
Sexual Differentiation
Female Reproductive Physiology
Maternal Physiology
Endocrinology Case Study

WEEK 12
(Mar23-27)

G.I. Physiology Overview
G.I. Physiology Neuro-Hormonal Control
G.I. Physiology Motility
G.I. Physiology Secretion 1
G.I. Physiology Secretion 2
G.I. Physiology Digestion 1
G.I. Physiology Digestion 2

WEEK 13
(Mar30-Apr3)

G.I. Physiology Ingestion
G.I. Physiology Digestion & Re-Absorption
Blood

WEEK 14
(Apr 6-10)

Exercise Physiology, Body Temperature Regulation & Fetal Circulation
MINI EXAM 4 GI & Endocrine (Friday 10th Apr 2009)

WEEK 15
(Apr 13-17)

STUDY WEEK & REVIEW

WEEK 16

FINAL EXAM & END OF SEMESTER

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***** Please note that this syllabus is subject to change(s) and will be made available to you where necessary.**