

RICHMOND GABRIEL UNIVERSITY

COLLEGE OF ARTS AND SCIENCES

THE PREMEDICAL PROGRAM CURRICULUM

The Premedical program is offered as part of the 5-year MD curriculum to allow qualified applicants who do not have a bachelor's degree to satisfy the minimum requirements for entry into the Doctor of Medicine degree program. Students must complete all the following courses and satisfy the minimum 90 credits or pre-requisite courses in the general sciences, social sciences and humanities division.

Semester	Department	Course Code	Course Name	Credits	Total
GS-1	Gen. Sciences	ENG 1001	English I	4	
		MTH 1001	Calculus Math 1	4	

		BIO 1001	Biology I + Labs	7	
		CHM 1001	Gen. Chemistry + Labs	7	22
GS-2		MTH 1002	English II	4	
		CHM 1002	Biostatistics Math 2	4	
		BIO 1002	Biology II + Labs	7	
		ENG 1002	Gen Chemistry II + Labs	7	22
		PHY 1001	Physics I + Labs	7	
GS-3		OCHM 1001	Organic Chemistry I + Labs	7	
		PSY 1014	Psychology	4	

		ENG 1003	Scholar Literacy	3	
		RES 1001	Research	3	24
GS-4		PHY 1002	Physics II + Labs	7	
		OCHM 1002	Organic Chemistry II + Labs	7	
		NUT 1001	Intro to Nutrition	3	
		SOC 1001	Sociology	5	22
	Total Program Credits				90

BASIC MEDICAL SCIENCE CURRICULUM

The Four-Year Doctor of Medicine Degree program encompasses the Basic Medical Sciences and Clinical Sciences phase over a 4 year period. Students complete the Basic Medical Sciences phase on the university campus in St. Vincent and the Grenadines.

Semester	Department	Course Code	Course Name	Credits	Total
MD-1	MANT	ANAT 1201	Gross Anatomy	8	
	MANT	HTG 1204	Histology & Cell Biology	9	
	MANT	EMB 1202	Embryology	4	
	MBEH	EPI 3006	Epidemiology	2	
	MICM	ICM 1101	Intro to Clinical Medicine I	3	26
MD-2	MBIO	BCHM 2001	Biochemistry	7	
	MPAT	PHY 2204	Physiology	9	
	MICM	ICM 2102	Intro to Clinical Medicine II	3	

	MBEH	PSY 3014	Behavioral Sciences	6	
	MBIO	MGEN 3002	Genetics	2	27
MD-3	MPAT	PTH 3301	Pathology I	10	
	MANT	NEU 3206	Neuroscience	6	
	MBIO	MIC 2104	Microbiology & Immunology	8	
	MICM	ICM 3103	Intro to Clinical Medicine III	3	27
MD-4	MPAT	PTH 4401	Pathology II	12	
	MPHM	PHM 4404	Pharmacology	10	
	MBIO	NUT 4403	Nutrition	2	

	MICM	ICM 4414	Intro to Clinical Medicine IV	3	29
MD-5	MICM	ICM 5106	Intro to Clinical Medicine V	7	
	REV 6000	Pre-Clinical Review	10	17	
Total Credits				126	

CLINICAL SCIENCE CURRICULUM

The Clinical Phase of the program provides valuable “hands-on” training at ACGME and CAAM-HP approved teaching hospitals in the USA and Jamaica respectively. Students are required to complete 48 weeks of core clinical clerkship and 32 weeks of elective clerkships. Student must complete their core rotations before moving on to elective rotations.

Year	Department	Course Code	Course Name	Credits	Total

Year 3	Clinical	IMED 5000	Internal Medicine	12	
		SURC 5000	General Surgery	12	
		FAMC 5000	Family Medicine	6	
		OBGC 5000	Obstetrics & Gynecology	6	
		PEDC 5000	Pediatrics	6	
		PSYC 5000	Psychiatry	6	48
Year 4	Clinical		Elective Rotations	32	32
	Total Credits				80

PREMEDICAL SYLLABUS COURSE DESCRIPTION

General Biology I || BIO 1001 || 7 Credits

The course will provide freshman students with experience from which they can develop the ability to appreciate simple biological topics pertinent to the understanding of more in-depth biological concepts and topics necessary in the understanding of general Biology pertaining to Taxonomy, Ecosystems, Cell Division, Photosynthesis, and Respiration.

General Biology II || BIO 1002 || 7 Credits

This course builds on the students' understanding of the fundamentals of biological changes and introduces the basic concepts of genetics. Students can develop and familiarize themselves with biological systems and apply relevant concepts in the explanation of various problems encountered in everyday life, for example, Human Diseases, Inheritance, Evolutionary Theories, etc.

General Chemistry I || CHM 1001 || 7 Credits

General Chemistry I is designed to provide a survey of inorganic and physical chemistry and an introduction to organic chemistry. Topics studied in this course include atomic structure, covalent and ionic bonding, chemical reactions, chemical calculations, acid, base and solution chemistry, radiochemistry and chemistry of hydrocarbons. Quantitative reasoning skills are developed and used where appropriate to enhance the understanding of these concepts. The medical and environmental applications of topics covered in the lecture are highlighted.

General Chemistry II ||CHM 1001 || 7 Credits

General Chemistry II is designed to overview important concepts of physical chemistry. It relates the physical properties of substances and their chemical composition and transformations. Topics studied in this course include gas laws, colligative properties, chemical equilibrium, chemical kinetics, and thermodynamics. The content aids in the understanding of how, how fast, and why chemical reactions and processes will occur. Quantitative reasoning skills are developed and used where appropriate to enhance comprehension. The basic concepts of chemistry are applied and their applications in current events and health sciences are evaluated.

Organic Chemistry I || OCHEM 1001 ||7 Credits

This course is a comprehensive survey of aliphatic and aromatic organic chemistry, with an emphasis on medical sciences. Students are exposed to topics such as phenols and aryl halides, aldehydes, and ketones. Amines, carboxylic acids, and their derivatives. Organic chemistry lays the foundation for biochemistry.

Organic Chemistry II ||OCHEM 1002 || 7 Credits

This course focuses on the metabolic pathway of the biological macromolecules, such as glycogenesis, glycogenolysis, lactose synthesis, breakdown products of metabolic pathways, structure and function of vitamins. Organic chemistry provides a solid foundation for biochemistry.

English I ||ENG 1001 || 4 Credits

This course builds on the students' understanding of the fundamentals of biologic changes and introduces the basic concepts of genetics. Students can develop and familiarize themselves with biological systems and apply relevant concepts in the explanation of various problems encountered in everyday life, for example, Human Diseases, Inheritance, Evolutionary Theories, etc.

English II ||ENG 1002 || 4 Credits

There will be two main modes of academic writing examined and explored by students during this course: expository and argumentative writing. Students will also be exposed to the fundamentals of research writing and will be asked to write an extensive research paper using the appropriate citation style (MLA). Students will be introduced to the roles that culture and perception play in speech and will be asked to analyse the impact and influence that both roles play on verbal and non-verbal forms of communication.

Introduction to Psychology ||PSY 1014 || 4 Credits

This course provides a foundation for a physician to deal with very difficult patients and their families. Areas covered include Psychiatry, abnormal behaviour, mental health diseases and diagnostic skills. Students will be introduced to the stages of life, Freud's topographic and structural theory of the mind, psychoanalytic theory, learning theories, substance abuse, sleep cycles and disturbances and genetics and biochemistry of behaviour.

Introduction to Nutrition ||NUT 1001 || 3 Credits

The course focuses on major nutrients and their dietary sources, functions, and contribution to human health. Students will learn

about energy-containing nutrients, vitamins and minerals and its contribution to weight management and a healthy lifestyle. The course also looks at applying the principles of diet modifications to the treatment of disease.

Calculus ||MTH 1001 || 4 Credits

This course provides students with the knowledge to apply Mathematics strategies in solving everyday problems and applying techniques in calculus to real-life situations. It allows students to develop a good Mathematical background that is essential to grasp concepts which are quantitative in nature.

Biostatistics ||MTH 1002 || 4 Credits

The objective of this course is to teach the principles of biostatistical analysis and epidemiology. It focuses on quantitative data analysis and the application of biostatistics in medical research. Terms such as incidence, prevalence, reliability, validity, sensitivity, specificity, and different research study designs are facts premed and medical students will have to know for the rest of their life. This course is an extension from Mathematics 101 and allows students to focus on concepts which allow them to organize and make sense of all the information that they will encounter as they continue their studies.

Physics I ||PHY 1001 || 7 Credits

Physics I cover basic principles and methods of all branches of classical physics at an introductory level. It also covers areas such as Newtonian mechanics, gravitation, oscillations, elasticity, fluids, and heat.

Physics II || PHY 1002 || 7 Credits

Physics II is a continuation of Physics I. It covers areas of basic knowledge of biophysics. It includes the basic principles of waves, optics, electricity, magnetism, electromagnetic induction, and radioactivity as applied in Medicine. Students will be introduced to basic applications of radiographic, CT-Scan, PET scan, Ultrasound and MRI imaging technology.

Research || RES 1001 || 3 Credits

The purpose of the Research Course is to gradually introduce the concept of research to premedical students. It involves the definition of terms and other aspects as regards to understanding research.

This present curriculum has been developed with the goal of achieving an integrated and flexible curriculum that goes beyond examinations. It promotes the skill and art of research in medicine, critical thinking, and lifetime learning. To impart good research skills to the students the program uses didactics lectures, clinical case discussions and practical sessions.

Scholar Literacy || ENG 1003 || 3 Credits

The course of scholarly literacy is designed to foster a knowledge base in the fundamentals of research, critical to a career in any of area of medicine. The course will include didactics on biostatistics, epidemiology, evidence-based medicine, research methods and other critically appraised topics. Across all activities, students will be exposed to overarching concepts and critical language for implementing and interpreting research. Students will demonstrate the integration of knowledge through the completion of authentic individual and group assignments. The course will focus on

synthesizing and translating evidence that will inform clinical and research practices.

Sociology || SOC 1001 || 5 Credits

This course introduces the main idea, themes, and issues of Sociology. It lays a theoretical base for the consideration of the nature of the Caribbean society and culture and encourages the adoption of a scientific approach to issues of social and economic analysis.

CLINICAL PHASE SYLLABUS COURSE DESCRIPTIONS

The Clinical Phase of the program provides valuable “hands-on” training at ACGME and CAAM-HP approved teaching hospitals in the USA and Caribbean respectively. Students are required to complete 48 weeks of core clinical clerkship and 32 weeks of elective clerkships. Student must complete their core rotations before moving on to elective rotations.

RICHMOND GABRIEL UNIVESITY
COLLEGE OF MEDICINE
COURSE DESCRIPTION

Behavioral Science ||PSY 3014 || 6 Credits

Behavior Science impacts in every year of medical study and practice and on all disciplines for the complete physician. While addressing the compassionate and humanistic aspects of medicine, Behavioral Sciences provides the prospective physician with the basic understanding of human behavior in the context of health and sickness. It also provides an opportunity for the student of medicine to understand principles of medical ethics of his/her own conduct in

various medical settings. Behavioral Science also provides the essential skills in interview techniques and history taking with the aim of preparing the student for patient care.

Biochemistry || CHM 2001 || 7 Credits

Biochemical understanding of proteins, carbohydrate, lipids and nucleic acids is fueling the revolution in medicine, demonstrating how the basic principles of biochemical structure govern molecular regulation in normal human health or malfunction in disease. The structure and content of the course can be broken down into three blocks, encompassing pathways for carbohydrates, lipids, proteins and nucleotides, how the pathways are regulated by signaling and individual molecules, and how intermediary metabolism relates these pathways together in a regulated manner (or disease state).

Gross Anatomy || ANAT 1201 || 8 Credits

Human gross anatomy is fundamental to medical education, providing students with their most basic foundation for medical practice. This anatomical foundation is used throughout the career of practitioners and in virtually every realm of medicine, from research to practice to medical education. The emphasis of this course is on normal human anatomy, although points of clinical relevance are discussed and clinically – oriented lectures are provided. An emphasis on normal anatomy is necessary because diseases encountered in medical practice generally represent departures from the fundamental pattern learned in this course. In addition, knowledge about normal anatomy is shared across the curriculum in other courses.

Histology and Cell Biology || HTG 1204 || 9 Credits

This is the study of the microscopic and ultramicroscopic structure of mammalian tissues and organs, *i.e.*, microscopic anatomy. Special emphasis is placed on the relation of structure to function in relation to disease & clinical scenarios. This course gives the student a

thorough and detailed overview of the various normal human tissues and organs.

The course highlights normal human histology and the functional significance of micro-anatomical structures. The lectures & laboratory portions of the course are completely integrated. The lectures precede the laboratory examination of corresponding material during each session.

Microbiology and Immunology || MIC 2104 || 8 Credits

This course will introduce students to the microbial species that cause human disease. We will cover bacteria, fungi, viruses, and protozoa, and discuss current topics including antibiotic resistance, public health threats, and global health. Upon completion of this course students will be able to describe: the biological differences between bacteria, viruses, fungi, and protozoa; how the biology of these organisms leads to human disease; and how humans try to prevent or treat these diseases. Students will be able to explain the tests used by microbiologists to identify and characterize organisms. and also to analyze a scientific article and present a critique to their peers.

Neuroscience || NEU 3206 || 6 Credits

An interdisciplinary introduction to the fundamental aspects of the nervous system structure and function. The course introduces the fundamental aspects of nervous system development, including an overview of the basics of integrative neural function, including sensory, motor, and limbic systems, and computational neuroscience. It provides a broad overview of the structure and function of the central nervous system, with a focus on issues relevant to clinical neurology.

Pathology I || PTH 3101A || 10 Credits

Pathology is the study of disease. Physicians who specialize in Pathology assist attending physicians in the care of their patients by

interpreting biopsies of various organs and mass lesions, examining cytology samples obtained by smears or fine needle aspiration.

Pathologists also generally supervise clinical laboratories (hematology, chemistry, microbiology, blood bank, serology, immunology etc.) to maintain quality control and accuracy. Lastly, pathologists perform autopsies to establish the cause of death in cases, which have defied clinical discovery. Forensic pathology is the subspecialty devoted to determining the cause of death in cases, which fall under the jurisdiction of a coroner or medical examiner.

The study of pathology is the foundation for understanding the biology of disease, necessary for competent patient care and the health and safety of the general population.

Pathology II || PTH 4401A || 12 Credits

Pathology is a major course that completes the basic science curriculum and is the bridge between basic science and clinical medicine. It is the field that studies the cause and diagnosis of disease. The pathologist is a physician skilled in the diagnosis of disease by microscopic and laboratory analysis. The science of pathology involves the exploration of the mechanisms of disease and how events at the level of the cell affect the patient as a whole. Emphasis is placed on understanding the basic principles and mechanisms of tissue and body reactions to injury and the morphological expression of these reactions.

Pharmacology ||PHM 4405 || 10 Credits

The goal of the Basic Medical Pharmacology course is to assure that our students obtain a thorough comprehension of the basic pharmacological principles necessary for developing the most rational, effective, and safest therapeutic regimen for their patients.

Medical Pharmacology provides an understanding of the basic principles of pharmacokinetics and pharmacodynamics. It focuses

on the mechanism of action of medications at the molecular, cellular, organ, system, and whole-body level.

Physiology || PHY 2204 || 9 Credits

Students are introduced to the basics of normal human physiological functions and processes in the human body with a direct correlation to human medicine. Emphasis is placed on cell physiology and in depth, coverage of physiological processes in the various organ systems in the body.

Pre-Clinical Review || REV 6000 || 10 Credits

Comprehensive Basic Science Review Course is a blend of all the Basic Science subjects learned by the students from MD 1 to MD4. This is where all Basic Science subjects are reviewed, giving the student the wherewithal to consolidate the learning objectives in line with Cognitive Domain of Bloom's Taxonomy, namely Knowledge, Comprehension, Application, Analysis, Synthesis and Evaluation of all Basic Science subjects. This course also provides a common organization of content across all United States Medical Licensing Examinations (USMLE). Consonant with the integrated nature of this course, each Organ System mentioned below will incorporate all or some of the elements of the Basic Science subjects as required, namely Anatomy, Histology, Embryology, Physiology, Biochemistry, Genetics, Pathology, Microbiology, Immunology and Pharmacology.

Embryology|| EMB 1202 || 4 Credits

A study of major developmental stages and processes with an emphasis on vertebrate embryos. Topics include gametogenesis and early development, formation of primary germ layers, and concepts of differentiation, tissue induction, and morphogenesis.

Epidemiology || EPI 3006 || 2 Credits

The material consists of an introduction to epidemiology, surveillance for the detection of outbreaks, and outbreak investigation and

control for infectious agents, etc. You will be introduced to case studies drawn from actual diseases that illustrate these essential epidemiological methods and will gain an understanding of how to solve case studies.

Medical Ethics || ETH 3115 || 2 Credits

The Medical Profession has long subscribed to a body of ethical parameters developed to guide medical decision making for the well-being and benefit of the patient. It is imperative that any health care professional have knowledge of medical law, ethics, and bioethics so that clients are treated with understanding, sensitivity, and compassion. Clinical ethics is a practical discipline that provides a structured approach for identifying, analyzing, and resolving ethical issues in clinical medicine. The willingness of physician and patient to endorse moral values, such as mutual respect, honesty, trustworthiness, compassion, and a commitment to pursue shared goals, usually ensures a sound ethical relationship between patient and physician.

Medical Genetics || MGEN 3002 || 2 Credits

This course will begin with an introduction to the biochemistry of nucleic acids including DNA replication and repair, transcription, and protein synthesis. This will lay the foundation for understanding how mutations result in disease processes. Emphasis will be placed on the molecular nature of specific genetic disorders. Classic Mendelian inheritance as well as newly described complex forms of inheritance will be presented. Problem solving will include clinical as well as molecular data. This course will provide a framework, which allows students to integrate the basic concepts of this fast growing and highly technical field.

Nutrition || NUT 4403 || 2 Credits

This course is a component of the Clinical Medicine Lecture series designed to provide an overview of nutrition and healthy diets according to current nutrition standards and models to prevent and

manage diseases. Health promotion, disease prevention, and cost containment will be reinforced and demonstrated as essential to delivery of health care.

Introduction to Clinical Medicine I || ICM 1101 || 3 Credit

The foundations of clinical medicine –I focuses on patient interviewing, medical history taking and key aspects of patient-doctor relationship. It is the first of a five-part curriculum designed to introduce the student to the basic elements of clinical practice. Topics in this semester include communication skills, ethical treatment of patients and professionalism. In addition, students working in small groups with individual physicians will learn the fundamentals of obtaining a complete medical history from the patient's presenting complaint, history of present illness, social history, family history, and review of systems.

Introduction Clinical Medicine II || ICM 2102 || 3 Credits

Foundation of Clinical Medicine-II course is designed to teach medical students to interview, examine, and understand patients and their problems. Application of this information is then used to form a differential diagnosis and plan for the treatment of the patient. The course consists primarily of lectures and laboratory sessions. The lectures cover the clinical pathology that is commonly encountered in the hospital and in everyday practice. The material is presented in a practical and comprehensive manner. Patient interaction labs accompany lecture topics and as far as possible the examination of a particular system is taught, and demonstration of specific clinical skill and techniques are carried out by the instructor in an interactive session just after the lecture on that particular body system. The course is organized into various systems such as Cardiovascular Examination, Respiratory Examination & Abdominal Examination.

Introduction to Clinical Medicine III || ICM 3103 || 3 Credits

Introduction of Clinical Medicine-III course is designed to teach medical students to interview, examine, and understand patients and their problems. Application of this information is then used to form a differential diagnosis and plan for the treatment of the patient. Patient interaction labs accompany lecture topics and as far as possible the examination of a particular system is taught, and demonstration of specific clinical skill and techniques are carried out by the instructor in an interactive session just after the lecture on that body system.

Introduction to Clinical Medicine IV || ICM 4414 || 3 Credits

This course is designed to help prepare the student for the clinical phase of medical school education. Lectures and demonstrations will review and reinforce the communication, professionalism, interviewing, screening physical and neurological examination skills learned in previous semester courses. Students will practice these skills in small groups in Clinical Skills Laboratory with individual physicians. At the completion of this course students will be able to communicate their conclusions, and the knowledge and rationale underpinning these conclusions, to specialist and non-specialist audiences with specific and special clinical skills in physical examination to identify pathological to normal findings. Students will also have the learning skills in clinical reasoning during their encounter with a patient involving all systems.

Introduction to Clinical Medicine V || ICM 5106 || 7 Credits

This course is designed to help the student integrate the knowledge learned in the Basic Sciences into the cognitive processes required for successful transition into the clinical sciences and to gain experience applying this knowledge to the practical approach of patient care. Students study the clinical presentation and management of major systemic disease processes including pertinent laboratory tests and radiologic studies of diagnostic importance. Advanced skills in interviewing techniques, history taking, and physical examination during problem-focused patient encounters will be covered. Emphasis is placed on the development

of a student's case presentation skills. The course faculty also team-teach small group clinical tutorials related to lecture and lab contents.