Title of Program: Doctor of Science (D.Sc.) Medical Arts

Year 1: Term 1

Anatomy and Physiology: The study of the human body and its parts. Structure and functions of organs and tissues, nerve and muscle feedback mechanisms, biological defense mechanisms. Also covered in depth is **Blood-** Typing, fractionation, and physiology. **3 Credits**

Molecular Biology and Introduction to Cancer Biology-First half of course covers the synthesis, structure and function of proteins, nucleic acids, and fatty acids, including the structure and function of mitochondrial DNA. Second half of course considers the biology of cancer, growth signals, blood vessel growth, and metastases. **3 Credits**

Epidemiology/Biostatistics – The study of clusters of disease and methods of establishing causation. Statistical methods of interpreting clinical data to determine for example if a particular drug therapy is effective to a statistical probability. **3 Credits**

Term 2

Medical Immunology-The physical, chemical, and physiological characteristics of the human immune system, in vitro, in situ, and in vivo. Humoral and cellular immune response, autoimmune disease, hypersensitivities, immune deficiency, and transplant rejection. Also covered is the immunology of fetal stem cells and fetal cell transplantation, the immunology aspects of autologous stem cell transplantation, and embryonic stem cell transplantation. **3 Credits**

Pathology (1)- General: General Pathology topics include Cellular response to injury, inflammation, Hemodynamic disorders, Diseases of the Immune System, Neoplasia, Infectious disease. **3 Credits**

Pathology (2) – Systemic: Topics include Blood Vessels, Heart, Diseases of White Blood Cells, Lung, Pancreas, Urinary Tract, Bones, Skin, Eye. **3 Credits**

Term 3

Clinical Medicine – This course presents the elements of taking a patient “history”, and performing “physical examination”. We review the basic steps based upon what symptoms or complaints the patient presents with. This course establishes taking the patient history as the heart of clinical medicine, and though the student may not be involved directly with patient treatment, these elementary concepts are central to good medical management. **3 Credits**

Clinical Skills-Here we continue with the foundation in “patient encounter” covered in the previous Clinical Medicine course, and concentrate on the use of basic medical examination equipment and patient interaction, through the presentation of instructive “how to” videos as well as additional study materials. Also included in this course is a study of **Skin-Dermatology and Cosmetic Techniques.** We emphasize Aesthetic Dermatology, which generally relies on the use of various medical equipment such as lasers to achieve a result without the use of surgery. In many countries, aesthetic dermatology clinics are operated by non-physicians, or alternatively, rely largely on technical staff trained in the use of equipment by the manufacturer. Also included are the new procedures with stem cell injections to the face and other facial rejuvenation techniques. **3 Credits**

System Disorders -In this course we will look at disease presentations at the patient level. We will use one of the most popular and most widely used training texts in the world, **Kumar and Clark’s Clinical Medicine.** Selected chapters are covered that involve the systems irregularities most often presented in the family practice or out patient clinic. **3 Credits**

Year 2: Term 1

Stem Cell Biology – The course begins with an overview of stem cells and the early history of embryonic stem cell research. We then proceed to a review of the techniques of using stem cells derived from human fetal tissue, and what diseases can be particularly controlled or cured. The course also includes a review of the current status of human embryonic stem cell treatments, why the international medical community has abandoned its interest in using embryonic stem cells, and also covering the two major drawbacks to embryonic stem cell therapy: Tendency toward proliferation (differentiation), making stem cells almost impossible to control once injected into another body, resulting in a differentiated cell ball of many types referred to as a teratoma; and the problem of cell rejection due to having “foreign” cell membrane antigenic determinants requiring a patient to take immune suppressing drugs. **3 Credits**

Autologous Stem Cell Therapy- The course covers international treatments available using autologous stem cells (collected from the patient). The primary international treatment centers are reviewed. The mechanism of action is studied. The purpose of the course is to bring to light the many curative techniques being used internationally, such as the repair of severed spinal cord using neural stem cells isolated from the patients nose. It is hoped that the student can gain insight to the fact that these current international treatments are no longer “hypothetical”, and hopefully will inspire the students to generate their own ideas for future work in their careers **3 Credits.**

Exosomes and the Rise of Birth Tissues. The biology, function, and biomedical applications of exosomes and extracellular vesicles is studies with emphasis on applications in stem cell therapy. This very important course expands on the findings of the “paired-mice” experiment to the effect that serum factors and not stem cells are the most important contributing element to achieving, boosting, and stimulating the body’s own natural repair mechanisms toward the control of our most debilitating diseases. And the most important source of exosomes is “birth tissues”: amniotic fluid, placental tissues, umbilical cord blood, and Wharton’s jelly. **3 Credits.**

Term 2

Infectious Disease- The 4 main types of infectious agents are studied: Bacteria, Virus, Fungus, Parasites, including some aspects of infection at the molecular level, as well as clinical presentations and treatments. **3 Credits**

Advanced Medical Laboratory Management. Course focuses on Clinical Laboratory Supervision with emphasis on Clinical Chemistry, Toxicology, Serology, Virology, Bacteriology, and Immunology categories. the course covers basic set up of a medical lab, types of tests done, how some representative medical lab tests are performed, and manual vs automated blood analysis, Laboratory values and Concentrations. **3 Credits**

Nursing and Nursing Management. The role of nursing in health care; and nursing classifications. Management of Nursing Staff. **3 Credits**

Term 3

Pharmacology and Pharmacy – Distinction between Pharmacy and Pharmacology, drug names and classes, generic drugs, bio-identical hormones, steroids, antihistamines, anti-inflammatory drugs, pharmacy dispensing, compounding pharmacies, therapeutics. Included is a study of Hormone Replacement therapy including Bio-Identical Hormones. **3 Credits**

Medical Embryology, Obstetrics and Gynecology– The course is challenging in its undertaking. For the Medical Embryology section: Consideration of the development of a complete organism from a single fertilized zygote, with emphasis on the development and identification of human stem cells. The course covers differentiation, types of early developmental cells, in vitro fertilization, the development of blast cells and germ layers, as well as the development of antigenic determinants as related to fetal stem cells. The Obstetrics and Gynecology portion is more clinically oriented toward issues of the sort encountered in a general practice, with emphasis on complications of child birth, as well as vaginal infections and vaginal cancer. Typical equipment for an OB/GYN practice is reviewed. **3 Credits**

Pediatrics and Family Medicine- Case studies and patient health encounters typical of a pediatric and family practice clinic. May include overview of a family practice clinic and/or introduction to critical care medicine. **3 Credits**

Year 3 Term 1

Forensic Medicine – The student studies: Blunt force and Physical Trauma, Environmental Accidents, Drug Abuse and Poisoning, Trauma with Sharp Instruments, Firearms Injuries, Biological Evidence for Time of Death. **3 Credits**

Research- Basic and Clinical– Cell culturing, the Scientific Method, analysis of research papers, Form and citation, Clinical Trials, Single Patient Clinical Trial, Institutional Review Board Trial, off label and compassionate use trial. **3 Credits**

Alternative Medicine – Introduction to the growing field of alternative medicine, by which we mean the alternative to allopathic medicine as practiced today in most countries. Allopathic medicine is what is taught in medical schools and revolves around medicines and procedures to effectuate “cures” or control disease. This course introduces alternative approaches toward healing including botanical medicine and herbology, including transdermal and patch technology for delivering botanicals. Example botanicals such as Cannabidiol and Kratom (Thai Red Baca) for pain, are studied in depth. **3 Credits**

Term 2

Medical Negligence Claims and Procedures- All about medical malpractice, standard of care, malpractice insurance, going without insurance, techniques for risk management at various levels (individual, clinic, small hospital). **3 Credits**

Medical Insurance and Coding- Medical insurance from the health care provider vantage point. Software for medical coding and billing of insurer by health care provider, non-payment by insurer, pre-approvals. **3 Credits**

Medical History and Records Management- Medical history and records are revisited from the angle of storage, indexing, retrieval, regulatory compliance and privacy. **3 Credits**

Term 3

Medical Devices- A special part of the practice of medicine and the development of new procedures is the highly regulated field of medical devices, which are mechanical and other devices used in medical practice. The field is studied with representative examples, and an overview of regulatory control is presented. **3 credits**

Telemedicine- Set-up and management. **3 Credits**

Hospital Management- The practice of medicine is summarized in terms of practice management, as well as essentials of Hospital Management. The program is closed out with a presentation of setting up a small clinic, equipment leasing and financing, appropriate computer systems, and employment procedures. **3 Credits**

Total Number of Trimester Credits: 81