Course Descriptions

I. Professional Courses:

MSEG 7216: Introduction to Infectious Diseases (Medical Students)

This course is offered during the first semester of the second year of the MD Program. It introduces the students to the basic concepts of medical microbiology including: microbial structure, physiology, genetics and metabolism, antimicrobial therapy and basic immunology and host response to infectious diseases. The epidemiology, pathogenesis, clinical presentation, diagnostic and prevention of infectious conditions cause by bacteria, virus and parasites will be discussed.

CBIO 7150. Microbiology (Dental Students)

The course emphasizes fundamental principles of the genetics, growth metabolism and death of microbes. These principles are balanced with medical and dental aspects of host-parasite relations, immunologic phenomena, and the biological and clinical manifestations induced by major pathogens. Stress is placed on organisms related to dental caries and periodontal and periapical diseases. Further, the student should understand the influence of microorganisms and its associated biologic phenomena on patient' health. The course is based on lectures, laboratory exercises and clinical correlations.

FARM 7285. Microbiology (Pharmacy Students)

This course includes the fundamentals of microbiology, specifically the concepts related to medical microbiology, such as: bacterial physiology, metabolism, genetics, sterilization and disinfections, and immunology. In addition, syndromes caused by different types of organisms are studied. Active learning strategies and methodologies will be utilized.

MICR 3345. Microbiology (Nurse Students)

Includes general aspects of immunology, physiology and genetics of microorganisms. The most important pathogenic organisms are discussed including bacteria, fungi, virus and protozoa with special emphasis directed toward the needs of nursing students.
**MICR 4006. Medical Bacteriology (Medical Technology Students)**

Microbiology and Immunology lectures and laboratories with emphasis in the technical procedures used in the isolation and identification of bacteria, viruses and fungi pathogenic to man.

**ZOME 6503. Medical Parasitology (Medical Technology Students)**

The study of helminths and protozoa of medical importance. The course consists of lectures and laboratory sessions.

**II. Graduate Courses**

**MICR 8499. Introduction to Medical Microbiology**

Subject matter will include the study of microbial physiology, microbial genetics and different infectious agents such as bacteria, viruses and fungi. The course will cover the distinguishing characteristics of these organisms, culture methods, pathological processes in which they are involved, and immune responses, which they stimulate in the infected host. This is an introductory course, consisting of lectures and laboratory sessions, which is a requirement for all graduate students who are entering the Graduate Program in Microbiology and is designed to provide the basis for more specialized courses in Microbiology.

**MICR 8501. Diagnostic Bacteriology**

The course consists of lectures, laboratory and discussion sessions related to the laboratory methods and techniques for isolation and identification of the most important bacterial pathogens.

**MICR 8504-06. Advanced Topics in Medical Bacteriology**

The course entails discussion of topics of interest that are pertinent to medical bacteriology. The topics must be approved by a faculty member and can be taken more than once, to the maximum of 3 credits.

**MICR 8510. Virology and Tissue Culture**

The course entails the study of the fundamental characteristics of viruses and the methods of tissue culture. The course will cover the basic characteristics of viruses that affect humans, including structure, replication, and evolution, their pathogenic effects in the host and host responses to infection.
MICR 8514-16. Advanced Topics in Virology

Topics of interest related to virology will be discussed. The topic to be discuss needs to be approve by the departmental faculty.

MICR 8517. Selected Topics in Microbiology

Selected and current topics in microbiology will be discussed. This course will be offered by one or more members of the department, or by invited professors. The topic to be discuss needs to be approve by the departmental faculty. Students may register for this course up to three times, each time in a different semester.

MICR 8518. Advanced Microbiology

Selected and current topics in microbiology will be discussed.

MICR 8525. Molecular Biology of the Microorganisms

This course is offered to the second-year students in the Biomedical Sciences Program. It will include the study of the basis of genetic expression in eukaryotic organisms, the theoretical aspects of recombinant DNA and RNA and current topics of molecular biology of microorganisms.

MICR 8530. Mycology

The study of the fundamentals characteristics of pathogenic fungi and its pathology, immunology and diagnosis of the disease they cause.

MICR 8530-31. Mycology Laboratory

The laboratory techniques used in the diagnosis of fungal diseases.

MICR 8532-34. Advanced Topics in Mycology

Topics of interest related to medical or environmental mycology will be discussed.

MICR 8540. Principles of Immunology

The course entails basic concepts of immunology and hypersensitivity at the humoral and cellular level, tumor immunology, cancer and transplant. It includes, in addition, basic concepts in immunochemistry.
**MICR 8542-44. Advanced Topics in Immunology**

The course will cover topics related to immunology or immunochemistry.

**MICR 8550. Microbial Physiology**

This course will cover the most important aspects of bacterial metabolism.

**MICR 8552-54. Advanced Topics in Microbial Physiology**

Topics of interest related to microbial physiology. Selected topics will be discussed by one or more members of the faculty or by invited professors. The topic to be discuss needs to be approve by the departmental faculty.

**MICR 8560. Microbial Genetics**

This course includes the study of the mechanisms of storage, expression and information of genetic transfer among microorganisms and the genetic variation by mutation. The effect of the selective pressures over the microbial population will also be discussed.

**MICR 8562-64. Advanced Topics in Microbial Genetics**

This course will discuss topics of interest related to microbial genetics.

**MICR 8580. Graduate Seminar**

The graduate student will attend the seminars presented by other members of the Department and will present a one-hour seminar during the semester.

**MICR 8590. Teaching Practice**

The student will be an instructor, under supervision of one of the faculty members, in one of the laboratories of the undergraduate or professional courses offered by the Department of Microbiology and Medical Zoology.

**MICR 8595. Master's Thesis**

The student will dedicate at least one semester to full-time research on his/her thesis. Academic credits for this work will be awarded once the thesis is presented by the student and approved by his/her Thesis Committee.

**MICR8599. Doctoral Dissertation**

The student will dedicate at least one year to full-time research on his/her dissertation. Academic credits for this work will be awarded once the thesis is presented by the student and approved by his/her Dissertation Committee.

**ZOME 8502. Introduction to Parasitology**
This course covers the general concepts of parasitism, with emphasis on the impact that parasites have on human health and on that of domestic animals. Discussed topics will include the biology, transmission, and identification of parasites.

**ZOME 8504. Nematodes**

The course covers the general characteristics and morphological details of selected parasitic nematodes. In addition to the lectures, discussion will include previous publications, epidemiological, historical and evolutionary aspects of each organism of interest. A weekly laboratory will enable the student to learn the most frequently used techniques in diagnosis and research on these organisms.

**ZOME 8506. Protozoa**

The objective of this course is to familiarize the student with current areas of emphasis in a) studies of protozoan parasites of medical importance, and b) protozoan diseases of global importance. The student will become familiar with recent publications relevant to the topics of the course, critical analysis of the published material and of the interpretation of the results.

N.B. Students who are not enrolled in the Department of Microbiology and Medical Zoology will require the permission of the department’s Director, or the course coordinator, to enroll in this course.

**ZOME 8513-17. Laboratory Methods in Parasitology**

This course consists of lectures and laboratory exercises during which methods and most refined techniques, appropriate to the assigned special problems, will be taught to each student.