

APPLIED HUMAN BIOLOGY

AHB701 INDEPENDENT STUDY IN APPLIED HUMAN BIOLOGY

1-4 Quarter Hours All Quarters

Students who wish to develop an expertise in specific topic related to his/her area of emphasis may take this course. It will be carried out under the direction of a faculty member, and typically a scholarly paper will be the product of the endeavor. Student may select a topic and work with a faculty member on a mutually agreed upon format.

AHB801 SELECTED TOPICS IN APPLIED HUMAN BIOLOGY

1 Quarter Hour Winter, Spring and Fall Quarters

All students and advising faculty from the various subspecialties will come together weekly to critique journal articles and present progress of ongoing thesis/dissertation topics. Students will present the papers and lead the discussion on assigned topics. In addition, students will be led through discussions of the latest developments in areas relating to applied human biology, including issues related to bioethics, research methodologies, basic physiologic concepts, and the physiologic implications of invasive technologies and technical developments on human care.

AHB820 ADVANCED APPLIED PHYSIOLOGY

4 Quarter Hours Winter Quarter

This course will provide an in-depth focus on cardiopulmonary physiology, including concepts, applications and experiences in applied work physiology under a variety of environmental conditions. Basics in muscle physiology, energy expenditure and metabolism, endocrine regulation of metabolism, measures of work, and physiologic responses and adaptations to exercise will be presented.

AHB830 LIFE SUPPORT SYSTEMS ENGINEERING

3 Quarter Hours Summer Quarter

This course is designed to introduce the student to the essentials of life support systems, including their engineering design, environmental control systems, and biomedical issues relating to hyper- and hypobaric environments.

AHB832 MEDICAL ISSUES FOR UNDERSEA OPERATIONS

3 Quarter Hours Fall Quarter

This course will focus on specific problem areas related to submarine operations and diving medicine. Topics will include basics of toxicology, operational toxicology, saturation diving, risk assessment of atmospheric contaminants and environmental exposures, and medical considerations related to these particular issues.

AHB835 ALTERNOBARIC PHYSIOLOGY

4 Quarter Hours Spring Quarter

This course is to introduce the student to the unique effects of pressure and inspired gas mix on physiologic systems. Areas of emphasis are hypoxia, altitude sickness, oxygen toxicity, decompression sickness (undersea and altitude), and other environmental stresses. Historical perspectives will also be offered.

AHB836 DECOMPRESSION MODELING & TABLE GENERATION

3 Quarter Hours Summer Quarter

This course is designed to teach decompression theory and application of mathematical modeling in the development of decompression tables. The theory and application of treatment tables for diving disorders will also be discussed.

AHB901 RESEARCH IN APPLIED HUMAN BIOLOGY

1-12 Quarter Hours All Quarters

Supervised research with individual faculty members of the Program. This course may be taken in each quarter in which a student is registered in the Program.

DEPARTMENT OF BIOMEDICAL INFORMATICS

BID510 INTRODUCTION TO BIOINFORMATICS COMPUTER SKILLS

2 Quarter Hours Spring Quarter

Introduction to Bioinformatics Computer Skills is designed to help biologists develop an approach to analyzing and utilizing the large amounts of biological data available in public databases. The course will introduce software tools for biological applications and for explaining information research. It will cover the background of bioinformatics and how tools are best used in the academic research setting. It thoroughly covers Unix, as it is applicable for biological research.

BIOCHEMISTRY

BCO520 ADVANCED BIOCHEMISTRY I

3 Quarter Hours Fall Quarter

This is a graduate level biochemistry course which emphasizes fundamental themes and principles of biochemistry. The goal is to establish a foundation in the areas of: aqueous solutions and thermodynamics; protein structure and function; protein purification and characterization; mechanism of enzyme catalysis and regulation; structure and function of carbohydrates; structure and function of lipids and biological membranes; and reading and understanding scientific literature in the area of biochemistry.

BCO521 ADVANCED BIOCHEMISTRY II

3 Quarter Hours Winter Quarter

This course will review the essential processes of intermediate metabolism and foundational principles of molecular biology. The first half of lecture material will cover the metabolic conversions of sugars and fats into cellular energy. The course will include the mechanisms of hormonal regulation of intermediate metabolism and energy storage. The basic principles of molecular biology will be covered with an emphasis on recent models of eukaryotic gene expression and receptor signal transduction.

EMERGING INFECTIOUS DISEASES

EID501 MODELS OF EMERGING INFECTIOUS DISEASES - I

2 Quarter Hours Winter Quarter

Provides an in-depth analysis of the epidemiology of, and pathology and host immune response to selected emerging (and re-emerging) infectious disease (EID) agents. Emphasis will be placed on the molecular

mechanisms by which the responsible organisms evokes disease. The relevance of the disease to the Department of Defense will be one consideration in the selection of that EID for coverage in the course. One model EID will be covered in 4 hours (one 2-hour session for each of two weeks). The first 2-hour session on each disease will be comprised of a 30- to 60-minute lecture of the clinical presentation (a case study may be used for illustrative purposes), the epidemiology of the disease, the nature of the etiologic agent, and the host response to infection. The 60-90 minutes will either be a research-based presentation on a topic relevant to molecular pathogenesis, host response, epidemiology, vaccine, development, or a series of two or three topics on the state of the research field for that EID. Students will be assigned a review and several primary articles to read prior to the session. The second 2-hour session will concentrate on student presentation of selected basic or clinical science research papers. Each student will know in advance when he/she will be making a presentation.

EID502 MODELS OF EMERGING INFECTIOUS DISEASES - II

2 Quarter Hours Spring Quarter

Provides an in-depth analysis of the epidemiology of, and pathology and host immune response to selected emerging (and re-emerging) infectious disease (EID) agents. Emphasis will be placed on the molecular mechanisms by which the responsible organisms evokes disease. The relevance of the disease to the Department of Defense will be one consideration in the selection of that EID for coverage in the course. One model EID will be covered in 4 hours (one 2-hour session for each of two weeks). The first 2-hour session on each disease will be comprised of a 30- to 60-minute lecture of the clinical presentation (a case study may be used for illustrative purposes), the epidemiology of the disease, the nature of the etiologic agent, and the host response to infection. The 60-90 minutes will either be a research-based presentation on a topic relevant to molecular pathogenesis, host response, epidemiology, vaccine, development, or a series of two or three topics on the state of the research field for that EID. Students will be assigned a review and several primary articles to read prior to the session. The second 2-hour session will concentrate on student presentation of selected basic or clinical science research papers. Each student will know in advance when he/she will be making a presentation.

EID503 MODELS OF EMERGING INFECTIOUS DISEASES - III

2 Quarter Hours Winter Quarter

Provides an in-depth analysis of the epidemiology of, and pathology and host immune response to selected emerging (and re-emerging) infectious disease (EID) agents. Emphasis will be placed on the molecular mechanisms by which the responsible organisms evokes disease. The relevance of the disease to the Department of Defense will be one consideration in the selection of that EID for coverage in the course. One model EID will be covered in 4 hours (one 2-hour session for each of two weeks). The first 2-hour session on each disease will be comprised of a 30- to 60-minute lecture of the clinical presentation (a case study may be used for illustrative purposes), the epidemiology of the disease, the nature of the etiologic agent, and the host response to infection. The 60-90 minutes will either be a research-based presentation on a topic relevant to molecular pathogenesis, host response, epidemiology, vaccine, development, or a series of two or three topics on the state of the research field for that EID. Students will be assigned a review and several primary articles to read prior to the session. The second 2-hour session will concentrate on student presentation of selected basic or clinical science research papers. Each student will know in advance when he/she will be making a presentation.

EID502 MODELS OF EMERGING INFECTIOUS DISEASES - IV

2 Quarter Hours Spring Quarter

Provides an in-depth analysis of the epidemiology of, and pathology and host immune response to selected emerging (and re-emerging) infectious disease (EID) agents. Emphasis will be placed on the molecular mechanisms by which the responsible organisms evokes disease. The relevance of the disease to the Department of Defense will be one consideration in the selection of that EID for coverage in the course. One model EID will be covered in 4 hours (one 2-hour session for each of two weeks). The first 2-hour session on each disease will be comprised of a 30- to 60-minute lecture of the clinical presentation (a case study may be used for illustrative purposes), the epidemiology of the disease, the nature of the etiologic agent, and the host response to infection. The 60-90 minutes will either be a research-based presentation on a topic relevant to molecular pathogenesis, host response, epidemiology, vaccine, development, or a series of two or three topics on the state of the research field for that EID. Students will be assigned a review and several primary articles to read prior to the session. The second 2-hour session will concentrate on student presentation of selected basic or clinical science research papers. Each student will know in advance when he/she will be making a presentation.

EID 505 FUNDAMENTALS OF INFECTIOUS DISEASE PATHOLOGY AND LABORATORY DIAGNOSIS

2 Quarter Hours Fall/Winter Quarters

Through a series of lectures, student presentations and laboratory demonstrations under the direct supervision of departmental faculty, the student is provided with a broad overview of the essential issues in infectious disease pathology. The course starts with introductory sessions on disease pathogenesis and host response which is followed by the laboratory approach to diagnosis of infectious disease. These initial sessions set the background for a systemic approach to infectious disease pathology. Each major organ system is reviewed with emphasis on laboratory diagnosis. The course concludes with discussion of infectious disease in specific populations and setting and culminates with an introduction to the clinical microbiology laboratory.

EID510 EMERGING INFECTIOUS DISEASES (EID) JOURNAL CLUB

1 Quarter Hour Fall/Winter/Spring Quarters

The EID Journal Club provides an opportunity for graduate students and fellows to review and discuss primary scientific literature related to all aspects of research pertinent to the field of emerging infectious diseases. These sessions are designed to not only expand the breadth of knowledge of the participants, they also function to promote critical thinking and to provide an informal forum for the development of skills necessary for the successful oral communication of research data. The EID Journal Club is open to all members of the academic community; however, the primary focus is to meet the training needs for EID graduate students and fellows as summarized above. Attendance is mandatory for all EID graduate students and fellows. The organization and administration of the EID Journal Club will be the responsibility of a single faculty member who will serve as the course director.

EID601 EMERGING INFECTIOUS DISEASES (EID) SEMINAR

1 Quarter Hour Fall/Winter/Spring Quarters

EID seminars provide a forum allowing the invitation of outside speakers, or in-house faculty, to present an EID, or a concept related to EID, for which the speaker is a recognized expert. The main goals are for the students attending the seminars to increase their breath of knowledge in the field and to meet experts in person. In addition, it will provide a model to follow when they have to present data. Seminar will be presented once per month. Seminars are primarily designed for the EID graduate students and fellows, but will be open to all members of the USUHS scientific community, affiliated hospitals (especially NNMC, WRAMC and AAFB), NIH, and Washington Area academic institutions. Attendance is mandatory for all EID graduate students and fellows. The administration of the EID Seminars will be the responsibility of a single faculty member who will serve as the course director, with the assistance of other faculty members as necessary.

EID901 RESEARCH IN EID
Variable Quarter Hours All Quarters

Research projects by graduate students will be conducted under the direct supervision of members of the EID Graduate Faculty who will provide guidance and will evaluate student performance in experimental design, conduct of experiments, analysis of data, and preparation of progress reports, verbal presentations, written dissertations, and publications.

INTERDISCIPLINARY COURSES

IDO502 EXPERIMENTAL STATISTICS
3 Quarter Hours Fall Quarter

This is an introductory graduate level statistics course designed for first-year Ph.D. students from any department. There are no prerequisites. The goals of the course are for students to: (1) understand and apply basic concepts in experimental statistics and design; (2) learn to use specific statistical tools (i.e., t-tests, analyses of variance, correlations, repeated-measures analyses of variance) that are appropriate in a variety of research contexts; and (3) learn to analyze data and interpret data analysis output using the computer program SPSS.

IDO503 EXPERIMENTAL DESIGN
3 Quarter Hours Winter Quarter

This course builds on the concepts and techniques covered in Experimental Statistics and Design I. Students will: (1) build on material learned in the first quarter and apply more advanced concepts in experimental statistics and design; (2) learn to use more advanced statistical tools (i.e., mixed-design analyses of variance, multivariate analyses of variance, multiple regression-correlation); and (3) learn to analyze data and interpret

IDO511 EDUCATIONAL METHODS
3 Quarter Hours Fall Quarter

This course facilitates the examination of concepts and practices in the teaching and learning process. It introduces a wide spectrum of instructional methods for adult learners, curriculum development strategies and evaluation methods. The course is intended to prepare students to teach in their own discipline or

professional field.

IDO515 GRANT WRITING FOR GRADUATE STUDENTS

2 Quarter Hours Summer Quarter

This course is designed to provide an overview of the grant writing process for graduate students and to enable graduate students to work in an efficient manner to produce a fundable grant/fellowship application. A great grant requires an important question, clear logic exploring that question, and the resources to complete the proposed studies. This course will overview external funding mechanisms, focus on specific aspects of proposal development, emphasize time management, and emphasize the use of colleague critiques in proposal development. Students will be oriented to the NRSA funding program using the PHS398 application to include a section by section review of this application. Students will develop two sections for class credit: Specific Aims section and Background and Significance section. They will also be required to review and critique these two sections of each other's proposals as part of a mock grant review panel at the end of the course and to obtain critiques from mentors. These review activities will serve to highlight the need to use colleagues as part of the proposal development process as well as to understand the criteria used for grant review. Development of career plans, in addition to an understanding of the role of the student's graduate thesis/dissertation advisor, are other key elements in grant/fellowship writing for graduate students that will be reviewed. At the end of the six-week course, it is expected that students will have developed a Specific Aims and Background and Significance section, grasped an understanding of the remaining sections and the process of grant submission, and, with the help of the graduate thesis/dissertation advisor, will complete the proposal and submit it for funding.

IDO704 ETHICS AND THE RESPONSIBLE CONDUCT OF RESEARCH

1 Quarter Hour Fall Quarter

Utilizing lectures and discussions, this course will provide participants with an opportunity to review the basic principles for responsible conduct of scientific research. The topics to be reviewed include the rationale for developing and practicing professional values, and the scientist's ethical responsibilities to society, their research subjects, and their peers. Issues concerning responsible practices in laboratory work, publication, handling conflicts of interest, and confidentiality will be discussed, as well as more general contemporary issues such as how science really works (normal science and "revolutions", creativity, bureaucracy). Each topic area is supplemented by seminar-style discussion and contemporary readings. Participants (graduate and postdoctoral fellows) will be expected to actively participate in the seminars. Library research will form the basis for the preparation of a short essay on a single topic of interest.

IDO999 FINALIZING DISSERTATION

1-12 Quarter Hours All Quarters

Research for the completion of the dissertation.

MOLECULAR AND CELL BIOLOGY

MCB503 GENETICS

3 Credit hours (1 in the Winter Quarter, 3 in the Spring Quarter)

The students are expected to develop a rudimentary knowledge of classical genetics and an extensive understanding of molecular genetics. Course material includes experimental approaches to genomic analysis and the mechanisms of transmission, expression, and manipulation of genetic information. This course is a graduate level course that will emphasize the experimental approaches used to address genetic questions in prokaryotic and eukaryotic systems.

MICROBIOLOGY AND IMMUNOLOGY

MC0501 MOLECULAR VIROLOGY

4 Credit Hours Winter Quarter (alternate years)

Virology occupies a unique position in modern biology. Many of the most common, and the most deadly, human pathogens are viruses. The advent of the AIDS epidemic, recent outbreaks of emerging viral diseases, such as Ebola, influenza, and West Nile virus, and the threat of bioterrorism, have led to an increasingly important role for the study of viruses in biomedical research. In addition to their roles in causing human diseases, viruses have also served as important model systems for understanding cellular processes at the molecular level. As viruses are dependent on host cells for almost all aspects of their life cycles, the mechanisms and principles governing viral and cellular replication and gene expression are nearly identical. The small genome sizes of viruses in particular render them highly amenable to experimental manipulations. Thus, many of the most fundamental discoveries about cellular processes such as mRNA splicing, mRNA transcription, DNA replication, oncogenic transformation, cell cycle control, and tumor suppression, to name just a few, have been elucidated in viral systems first. Viruses themselves are now being used as vehicles for the intracellular transfer of genes (gene therapy) and as important tools for vaccine development. The purpose of this course is to cover recent advances in virology and to develop within the students skills in (1) presentation of research results, and (2) critical thinking and evaluation of data from current literature.

MCO50 PATHOGENIC MECHANISMS

4 Quarter Hours Spring Quarter (alternate years)

The major objectives of this course are to provide students with a broad understanding of the mechanisms that are utilized by bacteria to cause disease and an appreciation of the experimental approaches that are utilized in the study bacterial pathogenesis. To accomplish the first objective, an overview of each topic is presented in a lecture format by departmental faculty or invited speakers who are experts in the field. Classic paradigms of infection are illustrated by focusing on the pathogenesis of specific organisms. To meet the second objective of the course, students present research articles each Friday that are pertinent to the topics discussed that week. Students also compose a short original research proposal on a topic of their choice that is relevant to the study of bacterial pathogenesis. After receiving written feedback on the proposal from the faculty, students present their revised proposals to the class to gain experience in orally defending a research plan. The final examination is a comprehensive examination of the material presented in the course. Final grades are based on class participation, student presentations, the written research proposal, and performance on a comprehensive examination. The course is offered every other spring semester (years 2003, 2005, 2007, etc.), and meets three days a week (M, W & F, 0900-1100).

MCO503 CELLULAR AND MOLECULAR IMMUNOLOGY

4 Quarter hours Winter Quarter (alternate years)

This advanced course is designed to extend student's knowledge in the major areas of Immunology: molecular immunology, immunogenetics, and cellular immunology. Emphasis will be placed on the understanding and interpretation of original papers. The course will be presented as a combination of lectures given by the faculty/guest lecturers and seminars in which original papers will be read and discussed by all participants.

MCO505 FUNDAMENTALS OF BACTERIAL GENETICS AND PHYSIOLOGY

2 Quarter Hours Fall Quarter

This course, which corresponds to the second block of the second-year medical student course, Medical Microbiology & Infectious Diseases (MCO201), is useful for graduate students who require a short course in basic bacterial genetics and physiology, and mode of action of antibiotics, but who do not require other aspects of medical microbiology and infectious diseases covered in the remainder of the MSII course.

MCO506 PROKARYOTIC & EUKARYOTIC CELL BIOLOGY & GENETICS

6 Credit hours Spring Quarter (alternate years)

This course is designed to provide the student with a broad introduction to the molecular biology of prokaryotic and eukaryotic cells using a literature-based format. Students will be assigned the responsibility for critically reading published scientific papers dealing with a wide variety of topics; particular emphasis will be placed on the cell biology and genetics of bacteria and yeast. Class sessions will primarily involve student presentations concerned with discussion and analysis of the data contained in these papers.

MCO508 FUNDAMENTALS OF PATHOGENIC MICROBIOLOGY

6 Credit hours Fall/Winter Quarters

This course, which corresponds to the pathogenic microbes blocks of the MSII course, MCO201, is useful for graduate students who require a course in basic pathogenic bacteriology, virology, mycology, and parasitology, but who do not require other aspects of immunology, microbiology, and infectious diseases covered in the immunology and basic bacteriology blocks of the Medical Microbiology and Infectious Diseases course.

MCO601 FRONTIERS IN MICROBIOLOGY & IMMUNOLOGY

1 Credit Hours Fall/Winter/Spring Quarters

Guest speakers, faculty members, postdoctoral fellows, and graduate students will present weekly seminars on selected topics in Microbiology & Immunology based on their own research.

MCO801 TOPICS IN MICROBIOLOGY

1 Credit Hour Fall/Winter/Spring Quarters

Current advances in Microbiology and Immunology will be discussed. Specific scientific papers will be selected for reading for each session. The experimental approach, methodology, and results will be discussed in a consideration of each scientific area selected.

MCO901 RESEARCH IN MICROBIOLOGY & IMMUNOLOGY

Variable Credit Hours Fall/Winter/Spring/Summer Quarters

Research projects by graduate students will be conducted under the direct supervision of members of the Microbiology & Immunology Graduate Faculty who will provide guidance and will evaluate student performance in experimental design, conduct of experiments, analysis of data, and preparation of progress reports, verbal presentations, written dissertations, and publications.

MCO2001 MEDICAL MICROBIOLOGY & INFECTIOUS DISEASES

10 Quarter hours Fall/Winter Quarters

This course is a second-year medical student course. It surveys the immunobiology of animal hosts and the biology of pathogenic bacteria, viruses, fungi, and parasites. It presents a broad introduction to immunology, basic and pathogenic microbiology, and host responses to infectious agents. The aim of the course is to provide an understanding of the scientific basis for pathogenesis, diagnosis, treatment, and prevention of infectious and immunologically mediated human diseases.

MEDICAL AND CLINICAL PSYCHOLOGY

MPO301 MILITARY PSYCHOLOGY I: ORGANIZATIONAL AND INDUSTRIAL

3 Quarter Hours Fall Quarter

This course will provide a review of general principles and techniques in organizational psychology/industrial psychology with a particular focus on their application to the military workplace. Topics include selection, classification and placement in military services, human factors related to military performance, environmental factors affecting military performance, leadership, and individual and group behavior. The specific aim of this course is to provide the student with a review of theoretical models of organizations and person x environment interactions to facilitate optimal performance within a military environment.

MPO401 CLERKSHIP I

1-12 Credit Hours Summer Quarter

This is a required course for all first-year clinical psychology students. The course will consist of 20 hrs/wk of supervised clinical service at a military teaching hospital. Students will obtain experience in assessment, case conceptualization and treatment.

MPO402 CLERKSHIP II

1-12 Quarter Hours Summer Quarter

This is a required course for all second-year clinical psychology students. The course will consist of 20 hrs/wk of supervised clinical service at a military teaching hospital. Students will obtain experience in assessment, case conceptualization and treatment.

MPO403 CLERKSHIP III

1-12 Quarter Hours Summer Quarter

This is a required course for all third-year clinical psychology students. The course will consist of 20 hrs/wk of supervised clinical service at a military teaching hospital. Students will obtain experience in assessment,

case conceptualization and treatment. This clerkship will involve the application of more complex assessment and treatment approaches.

MPO410 CLINICAL SKILLS TRAINING SEMINAR I

2 Quarter Hours Spring Quarter

This course is designed for second-year clinical psychology and medical/clinical psychology graduate students, and is the first in a series of two courses designed to further integrate practice-specific training with didactic work. These training seminars are designed to better prepare students for their applied practical experiences that are geared toward psychological assessment activities and the administration of various psychotherapy approaches, and for their future professional work as military or civilian psychologists. Seminar I is taken during the fall, winter, and spring quarters of the student's second year. To enhance overall learning, skill development, and general clinical efficacy, this course coordinates with topics presented in the Psychotherapy Fundamentals courses.

The structure of Seminar I allows for immediate application and discussion of the didactic concepts and techniques as they are presented in the foundation series. Students learn to apply specific clinical skill modalities through in-vivo training at the NCA Medical Simulation Center. Specifically, students take on a simulated caseload of three patients at the Simulation Center that they see on an ongoing basis during the year. Students are coached by the instructor, and receive feedback from their peers, the course instructor, and the standardized patients at the Simulation Center. In classroom roleplays give students additional opportunities to fine-tune specific clinical skills. In addition, relevant readings, prepared case studies, and students' current cases serve as the basis for lively class discussions.

MPO411 CLINICAL SKILLS TRAINING SEMINAR II NUMBER

2 Quarter Hours Fall/Winter/Spring Quarters

This course is designed for third-year clinical psychology graduate students and is the second in a series of two courses designed to further integrate practice-specific training with didactic work. The course is taken during the fall, winter, and spring quarters of the student's third year. These training seminars are designed to better prepare students for their applied practical experiences that are geared toward psychological assessment activities and the administration of various psychotherapy approaches, and for their future professional work as military psychologists. Students learn to apply a wide repertoire of clinical skills to specific patient populations as defined by the Diagnostic and Statistical Manual (DSM-IV) diagnoses.

Integral to the course, students take on a simulated caseload of three patients at the NCA Medical Simulation Center, and see these patients on an ongoing basis during the year. Students are coached by the instructor, and receive feedback from their peers, the course instructor, and the standardized patients at the Simulation Center. In classroom role-plays give students additional opportunities to fine-tune specific clinical skills. In addition, relevant readings, prepared case studies, and students' current cases serve as the basis for lively class discussions.

MPO501 INTRODUCTION TO MEDICAL PSYCHOLOGY

2 Quarter Hours Spring Quarter

Medical psychology is the study of behavior and mind as it relates to physical and mental health. This course is designed to provide an understanding of specific topics and issues that dramatically affect health, illnesses, and the practice of medicine. The lectures and discussions focus on clinically relevant topics that reflect central psychological principles and evidence.

MPO505 SOCIAL PSYCHOLOGY

3 Quarter Hours Winter Quarter

This course covers social psychology, with an emphasis on those areas that are applicable to understanding the etiology and treatment of illness as well as maintenance of health. Topics include group dynamics, social comparison, affiliation, cognitive dissonance, attitude formation and change, and attribution theory.

MPO506 PERSONALITY AND HEALTH

3 Quarter Hours Winter Quarter

This course will consider the role of personality factors and individual differences in susceptibility to illness, behavior, coping, and steps that people take to assure their health.

MPO509 APPETITIVE BEHAVIORS

3 Quarter Hours Winter Quarter

Appetitive behaviors include behaviors that are positively reinforcing, physiologically, and psychologically. The course concentrates on psychological aspects of these behaviors and on biological aspects which are inseparable from psychological factors. Emphasis is placed on experimental findings.

MPO511 PSYCHOPHARMACOLOGY

3 Quarter Hours Spring Quarter

Psychopharmacology is an in depth investigation of the effects of drugs relevant to behavior and mental health. This course includes detailed discussions of basic topics in neuroanatomy, neurophysiology, neurochemistry and experimental psychology relevant to basic and clinical psychopharmacology.

MPO513 PHYSIOLOGICAL BASES OF BEHAVIOR

Variable Quarter Hours Spring Quarter

Included in this course will be discussion of the structure and function of the nervous system and physiological mechanisms underlying psychological linkages with the cardiovascular system. Also, psychoendocrinological function will be considered. The interrelationship of these specific subsystems to behavioral functioning will also be explored.

MPO515 BEHAVIORAL FACTORS IN CHRONIC DISEASES

3 Quarter Hours Fall Quarter

Consideration of psychological and behavioral factors in the etiology, progression, and treatment of the major cardiovascular diseases and cancer. Included will be discussion of the role of critical life events; particular behavior patterns and traits(e.g., depression) psychosocial aspects of cardiac rehabilitation; coping with the stresses of illness; and problems of medical compliance for the patient with chronic illness.

MPO528 FOUNDATIONS OF INTERVENTION: COGNITIVE-BEHAVIORAL THERAPY

3 Quarter Hours Fall Quarter

This course, the first in a three-part series on psychotherapy (along with Psychodynamic and Group Psychotherapy), introduces the student to the theory and practice of cognitive-behavioral therapy. Course objectives include increased understanding of the ability to critically evaluate cognitive-behavioral approaches in the following areas: (1) history, philosophy, and principles; (2) case conceptualization and assessment techniques; (3) treatment methods for specific clinical problems; and (4) the empirical literature.

MPO530 FOUNDATIONS OF INTERVENTION: GROUP PSYCHOTHERAPY

3 Quarter Hours Spring Quarter

This course is an introduction to the basic concepts and techniques of group psychotherapy. The course consists of didactic material, video presentations, and experiential exercises. Special attention will be given to an examination of out-patient therapy groups, in-patient therapy groups, and time-limited psycho-educational groups. Class readings and video presentations provide the material for class discussion and participation in group exercises. Students are required to develop a written proposal for a time-limited therapy group. An oral presentation of this proposal is also required.

MPO533 NEUROPSYCHOLOGY

3 Quarter Hours Fall Quarter

This course is designed as an introduction to Neuropsychological theory and will provide an overview of the empirical and clinical findings that have contributed to current knowledge of the relationship between brain functioning and human behavior. The first part of this course will review the antecedents that led to the interest in brain-behavior relationships. The remainder of the course will emphasize specific relationships between structural neuroanatomic and functional cognitive/behavioral changes associated with clinical neurological conditions. Particular emphasis will be placed on the functional cognitive and behavioral manifestations of disrupted neural systems in humans. By the end of this course, students will have acquired: 1) an understanding of neuropsychological theory, 2) knowledge of prevalent clinical neuropsychological conditions, and 3) awareness of scientific research methods used to evaluate brain-behavior relationships.

MPO534 PLANNING, IMPLEMENTING AND EVALUATING HUMAN SERVICES PROGRAMS

3 Quarter Hours Fall Quarter

This course will review the process of development and evaluation of human service programs. Principles and techniques of program development, outcomes research and cost-benefit analyses will be reviewed. Methods to communicate results and mobilize organizational change based upon findings will also be highlighted.

MPO535 PREVENTION & TREATMENT OF SUBSTANCE ABUSE/ADDICTIVE BEHAVIORS

3 Quarter Hours Spring Quarter

This course is designed to promote a thorough understanding of substance use, abuse, and treatment from a biopsychosocial perspective. A descriptive overview of the problem of substance abuse and dependence will focus on patterns of use for particular substances among different subgroups. Major theories of addictive behaviors are examined along with the treatment approaches following from these theories. Treatment of addictive behaviors within the context of other disorders and within the context of the family system is examined. Large scale and individual prevention strategies are reviewed (with particular emphasis on

problems within the military). Students are expected to understand prevalence and treatment of addictive behaviors within a biopsychological context.

MPO537 CLINICAL ASSESSMENT: I

5 Quarter Hours Winter Quarter

This class is required for all first year clinical students in the Clinical Psychology program in preparation for year-one clerkships. The course will cover basic interviewing techniques & strategies for structured & semi-structured interviews in clinical practice. Students will also receive specialized instruction in cognitive and behavioral interviewing and case conceptualization. Students will complete several interviews in simulated clinical settings. The second half of this course will introduce students to the major techniques involved in intellectual assessment.

MPO538 CLINICAL ASSESSMENT: II

5 Quarter Hours Spring Quarter

This course is an introduction to the major techniques of objective and projective psychological assessment. The student is expected to develop a basic understanding of two major areas of psychological testing: intellectual evaluation and personality assessment. In addition, a brief introduction to neuropsychological assessment is provided. This course presents the basic clinical knowledge and strategies necessary for the competent use of the more widespread and important tests in adult clinical psychology with emphasis on rationale, range of applicability, administration, and scoring. In addition, students will be expected to demonstrate a basic understanding of interpretation and integration of information from various sources.

MPO544 AMBULATORY ASSESSMENT IN BEHAVIORAL MEDICINE

3 Quarter Hours Winter/Summer Quarters

The objectives of this course are for the students to: (1) understand the use of ambulatory monitoring techniques for assessments of psychological, behavioral, and physiological variations during daily life activities; (2) learn how to apply these techniques using ambulatory assessment tools (e.g., computer-based diaries, automated activity monitors, ECG, blood pressure, salivary cortisol); (3) become familiar with data-reduction techniques for ambulatory assessments. Each class has a theoretical and clinical implications part and all class participants will have practical exposure to the monitoring techniques.

MPO605 HEALTH PSYCHOLOGY/BEHAVIORAL MEDICINE SEMINAR

3 Quarter Hours Spring Quarter

Provides seminar adjunct to the lecture Introduction to Med Psy Course designed for graduate students and others who are interested pursuing advanced study in this field. The primary goal is to enable students to read and evaluate current research in their field.

MPO901 RESEARCH METHODS & COMPLEX HUMAN EXPERIMENTATION I

3 Quarter Hours Fall Quarter

This course will consider techniques and procedures for designing, executing, and analyzing experiments on complex processes with human subjects. Laboratory models, field studies, and other settings will be covered, and class exercises will emphasize applied research design and critical reading of existing studies.

MPO902 RESEARCH METHODS & COMPLEX HUMAN EXPERIMENTATION II

3 Quarter Hours Winter Quarter

Continuation of Research Methods & Complex Human Experimentation I.

NEUROSCIENCE PROGRAM

NSO507 NEUROBIOLOGY OF DISEASE

3 Quarter Hours Spring Quarter

This course introduces clinical concepts in neurology to neuroscience and other basic science graduate students. The emphasis is on understanding clinical terminology and disease pathophysiology as well as on synthesizing the basic science knowledge students have already attained in biochemistry, cell biology, and anatomy in meaningful clinical concepts. The scientific basis of neurological disease processes will be stressed. The lectures cover topics including the human genome, disease mechanisms, clinical signs and symptoms, aging, mechanisms of cell dysfunction and cell death, and therapy. Students will not only learn the latest information about neurological diseases but will also learn about how clinical neurologists practice their art and what patients with neurological illnesses experience. Class attendance and participation in class discussion is crucial for passing this course. Students will take three exams and will also be required to present one assigned paper from the recent literature for class discussion.

NSO510 INTRODUCTION TO DEVELOPMENTAL NEUROBIOLOGY

2 Quarter Hours Spring Quarter

Students will explore fundamental aspects and recent advances of developmental neurobiology. The focus of the course is primarily didactic. Class time will generally be devoted to formal lectures. Additional material will be covered in instructor-led discussions of supplemental readings. Topics will include molecular and cellular aspects of neural differentiation and cellular determination in addition to trophic interaction, axon guidance, synapse formation, and the construction of neural cytoarchitecture. General developmental principles will be reinforced and considered within the context of specific vertebrate and invertebrate neural systems. Course readings will be selected from textbooks, published review articles, and original research papers. Students may be assigned supplementary course readings that emphasize experimental approaches when appropriate and may be called upon to give brief presentations or summaries of assigned readings.

NSO601 NEUROSCIENCE SEMINAR

1 Quarter Hour All Quarters

Guest speakers, faculty members, postdoctoral fellows, and graduate students will present seminars on a bi-weekly basis. The seminars will review recent research developments in the speaker's laboratory, or will review recently published literature. In addition, students will be assigned to attend additional seminars on topics related to neuroscience. These seminars will be selected by the Course Director from seminars presented at USUHS and NIH. A total of 12 semesters will be attended each quarter. This course may be taken more than once, since the topics will change at each presentation.

NSO701 NEUROSCIENCE TUTORIAL

1 Quarter Hour Spring Quarter

Student prepared, public presentation (seminar) of their recent or ongoing research, or a literature or research review followed by a question/answer session. Students will use this course to sharpen their skills in critically evaluating the current scientific literature, in assembling and presenting their research results and in public speaking. This course may be taken more than once.

NSO801 SPECIAL TOPICS IN NEUROSCIENCE

1-8 Quarter Hours All Quarters

Students who wish to undertake supervised study in selected areas of neuroscience may register for this course with the approval of the course instructor (who will be a member of the Neuroscience Graduate Faculty) and the Neuroscience Program Director. Students will undertake a systematic study of readings or other special opportunities for neuroscience training related to the selected topic under the supervision of the course instructor. Students will meet with the instructor at least once a week to review the material presented in the readings. If appropriate, lectures by neuroscience faculty, or other neuroscientists approved by the course instructor may form part of the course work. This course may be taken more than once, provided different topics are selected, with the approval of the Program Director.

NSO802 ADVANCED TOPICS AND TECHNIQUES IN NEUROSCIENCE

3 Quarter Hours Spring Quarter

This lecture/laboratory course provides exposure to concepts and laboratory techniques in neuroscience. Through weekly lectures, readings, and laboratory demonstrations and exercises, the student will become familiar with a variety of equipment and research strategies, including molecular and biochemical, physiological, and behavioral methods.

NSO901 NEUROSCIENCE RESEARCH

1-12 Quarter Hours All Quarters

Supervised research with individual faculty members of the Neuroscience Program on advanced topics in neuroscience, or dissertation research under the supervision of the Major Advisor and the Dissertation Committee. Student performance will be evaluated in experimental design, conduct of experiments, analysis of data, and preparation of progress reports, verbal presentations, written dissertations, and publications. The course may be taken in each quarter in which a student is registered in the Neuroscience Program.

PATHOLOGY

PA0501 TOPICS IN GENERAL PATHOLOGY

3-5 Quarter Hours Fall Quarter

This course will provide an introduction to general pathological processes and reactions. Tissues and organ alterations in disease states common to large portions of the body are covered. Both gross and microscopic as well as dynamic aspects of disease are included.

PA0502 TOPICS IN PATHOGENESIS

3-4 Quarter Hours Fall Quarter

Mechanisms and concepts of pathogenesis will be illustrated through in-depth study of selected human diseases involving processes of neoplasia, inflammation, metabolic dysfunction, viral infection immune-

dysfunction and auto-immunity. Faculty lectures will provide an overview and conceptual framework. In a series of complementary conference/seminars, centered around each disease, data from the fields of medical genetics, epidemiology, microbiology, and cellular or molecular pathology will be integrated and subjected to critical analysis. When relevant, experimental animal models will also be introduced. Students will participate actively in the conference/seminars and prepare essays based upon readings of original research papers or current literature reviews.

PA0503 INTERFERONS

3 Quarter Hours Fall Quarter

The course will discuss the following subjects related to interferons and interferons-inducer studies: Structure; purification methods; inducers; mechanisms of production and action; antiviral activity in animals; clinical potential; biological significance; effects on the immune system; and cell growth inhibitory activity.

PA0506 PATHOLOGY OF ORGAN SYSTEMS

1-9 Quarter Hours Spring Quarter

Study of the pathology of specific organ systems. This course will be offered in conjunction with the Pathology course for second year medical students.

PA0510 MECHANISMS OF GROWTH CONTROL NEOPLASIA

4 Quarter Hours Spring Quarter

The objective of the course is to acquaint students with genetic and biological mechanisms by which cell growth is altered during the development of neoplasia. The Effect of loss of growth control on the development of specific pathology will be discussed. The course will consist of a combination of lecture, discussion of primary literature and presentation of research data by guest speakers, who are experts in the field. Requirements for enrollment include a background in Molecular and cell Biology or Pathology.

PA0520 HISTOLOGY FOR PATHOLOGISTS

2 Quarter Hours Summer Quarter

A basic histology course for students pursuing advanced degrees in pathology. Basic tissue histology and organ systems will be covered utilizing a lecture and "hand on" multi-headed microscope format. Eleven segments will focus on common microscopic features of normal tissues and organs. Appropriate special histochemical stains will be used to illustrate the appearances of normal histologic landmarks. Upon successful completion of the course, students will be able to better understand basic pathologic processes.

PA0530 MEDICAL LABORATORY DIAGNOSIS AND PATHOLOGY OF BIOLOGICAL THREAT AGENTS

3-4 Quarter Hours Spring Quarter

This course will address pathobiological, biochemical, molecular, and medical laboratory features of living agents or organic products of potential use in warfare, terrorism, or criminal activities. Students will gain an appreciation of the scope of biological agents and their potential for deployments against humans, animals, and plants. The clinicopathologic presentation of biological toxins and chemical agents will be compared and contrasted. Environmental issues that make certain agents special threats in particular geographic locations will be discussed. Lectures will detail mechanisms involved in the spread of microbial organisms of toxins, routes of host entry, the pathophysiology of host reactions, and the specific cellular, biochemical, and molecular pathology in target organs. Laboratory diagnosis and forensic investigation also will be emphasized. Attention will be drawn to relevant aspects of prophylaxis and therapeutics. Students will be

taught to distinguish the properties of agents or organic products that represent dangers as strategic and tactical weapons of warfare from those with properties more suited to use in bioterrorism or crime. Instruction will include case studies and laboratory sessions to explore relevant tissue findings and agent detection techniques. Sessions will be designed to allow for student participation in case analyses. Means for rapid and accurate clinicopathologic diagnosis will be emphasized. Throughout this course, students will be informed of current efforts to prevent, contain or counter the terrorist and criminal uses of biological weapons. This will include issues of decontamination, detection of arsenals, and verification of weapon destruction. Although many specific strategies are classified, students can be familiarized with some of the resources available to the military in preparing operations for a threat environment.

PA0531 CRITICAL MODELS OF INFECTIOUS DISEASES: PATHOLOGY AND LABORATORY DIAGNOSIS

4 Quarter Hours Winter Quarter

Through a series of lectures, case presentations and laboratory demonstrations by staff, the student will examine a series of 35-40 specific infectious diseases with an emphasis on the pathology of the disorders and the molecular pathologic techniques useful in their diagnosis. Each specific infection will be studied by examining its 1.) clinical and epidemiologic features, 2.) "classical" gross and microscopic morphology, 3.) molecular pathology, 4.) and, if applicable, animal models. Recent changes in the organism will be discussed as they effect the pathologic features. Comparison with closely related diseases will emphasize the differential diagnostic features. Case oriented discussions by students will include examination of gross and microscopic pathology materials.

PA0540 THE SCIENTIFIC, DOMESTIC, AND INTERNATIONAL POLICY CHALLENGES OF WEAPONS OF MASS DESTRUCTION AND TERROR PART II: NUCLEAR, RADIOLOGICAL, HIGH EXPLOSIVES, AND TOXIC CHEMICAL AGENTS

3-4 Quarter Hours Fall Quarter

This course will address technical and policy issues associated with weapons, which may be used in warfare, terrorist actions, or criminal activity. The information on the agents covered within this course is designed to provide a comprehensive understanding of weapons of mass destruction (WMD) when combined with the companion course on biological weapons and biological terrorism, "The Scientific, Domestic and International Policy Challenges of Weapons of Mass Destruction and Terror Part 1: The Emerging Threat of Biological Weapons and Bioterrorism." Students will learn how and why distinctions are made between each of the types of devices, such as nuclear versus radiological and chemical versus biological. They will have expert instruction on the physical and chemical effects of each type of weapon and their medical consequences. Information on the current state of the art for detection and containment of the hazards pre- and post-use of these weapons will be presented. An important aspect will be describing the medical effects of each modality. Information will be provided on treatments and therapies that currently exist and the research that is being conducted to improve treatment modalities. The available means of protection pre- and post incident, both for personnel who must respond to these hazards and measures to protect the general public and property will be explored. The concept and importance of psychological casualties and measures that can or should be taken will also be presented. Many of these agents have severe environmental consequences, which will also be discussed. The course will also address geopolitical and domestic legal issues associated with prevention and response to WMD incidents. This will include information on international treaties and domestic regulations governing the legality of production, transport and use of these agents in both the military and commerce. Issues concerning dual use or subversion of legitimate commercial activities will be examined. Information on the issues and means for detection, treaty

verification, counter proliferation, deployment and examples of their use to date will also be presented. Administrative aspects of the national emergency response plans, legal authority of Federal, State and local governments and criminal investigation will be covered.

PA0601 SEMINARS IN PATHOLOGY

1 Quarter Hours Fall/Spring/Winter Quarters

Provide and in depth understanding of experimental approaches to Pathology. Lectures on molecular pathobiology and comparative pathology by staff members and invited speakers will be offered weekly throughout the fall, winter and spring quarters, Note: This course can be taken for credit repeatedly, as the topics are continually changing.

PA0701 TUTORIAL IN MOLECULAR PATHOBIOLOGY

1-4 Quarter Hours All Quarters

Students who wish to undertake supervised study in specific areas of Molecular Pathobiology may register for this course with the approval of the instructor (a member of the Pathology Department Faculty) and the student's advisor. The instructor, advisor, and student will establish goals for the tutorial prior to the beginning of the course. The tutorial may be conferences, literature study, student presentations, laboratory exercises or any combination of these factors.

PA0801 SPECIAL TOPICS IN PATHOLOGY

2 Quarter Hours Fall/Winter Quarters

This course is designed to supplement and be taught concurrently with Pathology. The format will be a mixture of lectures and student presentations of the literature in Pathology. Selected topics in Pathology will be discussed to illustrate key experiments leading to our current knowledge of Pathology. Emphasis of the course will be placed on both theoretical and practical aspects of current research in Pathology. This course will be required for all graduate students in the Molecular Pathobiology graduate Program.

PA0901 RESEARCH IN MOLECULAR PATHOBIOLOGY

1-12 Quarter Hours All Quarters

Research projects by graduate students in molecular pathology will be conducted under the direct supervision of members of the faculty who will provide guidance and evaluate student performance in experimental design, conduct of experiments, analysis of data, and preparation of progress reports, verbal presentations, written dissertations and publications.

PA0902 RESEARCH IN COMPARATIVE PATHOLOGY

1-12 Quarter Hours Fall/Spring Quarters

Research projects by graduate students in Comparative Pathology will be conducted under the direct supervision of members of the faculty who will provide guidance and evaluate student performance in experimental design, conduct of experiments, analysis of data, and preparation of progress reports, verbal presentations, written dissertations and publications.

PREVENTIVE MEDICINE AND BIOMETRICS

AEROSPACE

MEDICINE

PMO841 AEROSPACE PHYSIOLOGY I

3 Quarter Hours Fall Quarter

This course introduces students to aerospace physiology. It involves lectures, readings, and discussions that review the history and physiological issues related to exposure to high altitudes. Emphasis is placed on the physical nature of the atmosphere as well as respiratory/circulatory anatomy and physiological effects of exposure to decreased atmospheric pressure. Aircraft and flight equipment designs to counter the physiological threats are included. Prerequisites: Permission of Course Director

PMO842 AEROSPACE PHYSIOLOGY II

3 Quarter Hours Winter Quarter

This course continues to introduce students to aerospace physiology. It involves lectures, readings, and discussions that review the physiological problems associated with flight. Emphasis is placed on the areas of sensory physiology, acceleration physiology & biodynamics, and crash preparation. The role of associated survival equipment will be emphasized in each area. By the end of the course the student will know how to calculate the forces involved in an aircraft mishap. Prerequisites: Permission of Course Dir & Trigonometry, PMO841 recommended

Winter

PMO845 HUMAN FACTORS IN AVIATION

3 Quarter Hours Spring Quarter

This course will introduce the student to the multifaceted concept of human factors in aviation. It will discuss the impact of human limitations and human interaction in the flight environment. Emphasis will be placed on identifying the role of human factors in aircraft mishaps. The course will also include preventive techniques used to reduce human error. Crew/Cockpit Resource Management Training teaches crews to use all resources available to them to increase mission effectiveness and flight safety. Secondly, Operational Risk Management attempts to identify hazards and alleviate or compensate for them. Lastly, technical advances enable more realistic simulator training to better prepare crews for high threat contingencies. At the completion of the course the student will be able to effectively evaluate aviation related CRM/ORM issues.

Prerequisites: Permission of Course Director, PMO841 & PMO842 recommended

PMO846 AEROSPACE EXERCISE PHYSIOLOGY

3 Quarter Hours Spring Quarter

This course will introduce the student to exercise physiology as it relates to the aviation environment. The course will be comprised of lecture, seminar, and laboratory/field trip experiences. Emphasis will be placed on the role of proper physical conditioning in maintaining the healthy lifestyle necessary for optimum performance in the demanding environment of flight and flight operations. At the end of the course the student will be able to design physical conditioning programs for aviators based upon the demands of the weapon system in which they fly. The student will also be able to apply exercise physiology principles to the aviation environment. Prerequisites: Permission of Course Director, PMO841 & PMO842 recommended

PMO847 AEROSPACE PERFORMANCE AND HEALTH

3 Quarter Hours Spring Quarter

This course will introduce the student to health related topics as they apply to performance in the air and space environments. The course will be comprised of lecture and seminar using aviation mishaps to illustrate the health/performance issues. The student will be required to research a given mishap, given the appropriate background information, and then provide a human factors analysis of the event. Topics will include such things as nutritional supplements, fatigue, fitness, body defenses, general health, dehydration, and medications. At the end of the course the student will have a broad understanding of the relationship of

health to performance in the aerospace environment. Prerequisites: Permission of Course Director, PMO841 & PMO842 recommended

PMO975 INTRODUCTION TO AEROSPACE MEDICINE SEMINAR

2 Quarter Hours Winter Quarter

This course will introduce students to the exciting, demanding, and unique challenges faced by those who live, work, and play in the aviation and space environment. Topics covered include the history of aerospace medicine, aerospace physiology and human factors, aerodynamics, clinical aviation medicine, operational aviation medicine, and accident prevention and investigation. The diverse practice settings of aerospace medicine in the military, NASA, FAA, and civilian sector will also be highlighted. Prerequisites: Permission of Course Director

ENVIRONMENTAL AND OCCUPATIONAL HEALTH

PMO540 ENVIRONMENTAL HEALTH

3 Quarter Hours Summer Quarter

This course provides a broad exposure to basic environmental health subjects, including toxicology, epidemiology, indoor and outdoor air quality, food service sanitation, insects and rodents, environmental noise, energy, drinking water treatment, wastewater treatment, solid waste disposal, injury control, the workplace, risk assessment, risk communication, and environmental regulations. Discussions will cover the specific, general and global issues associated with these environmental health topics. Several site visits are scheduled during the course which will reinforce understanding of selected topics. Prerequisites: None

PMO541 GLOBAL ENVIRONMENTAL HEALTH

2 Quarter Hours Fall Quarter

This course focuses on global environmental health concerns in geographic areas outside of the United States, especially in Third World countries. It will emphasize the basis of concern for environmental health issues and resources available for health professionals working in developing countries. The course will compare and contrast environmental health infrastructure situations with that of developed countries. The approach will include a framework for evaluating environmental health science and practice. The topics selected for detailed review will vary to reflect current global and international health concerns. Topics may include foreign animal and zoonotic diseases; international organizations, principles and practices; selected topics of special interest in developing countries; impacts of religion and culture; and resource issues. Students participate in discussions, case studies, and realistic scenarios. Prerequisites: PMO540 or Concurrence of Course Director

PMO542 CLINICAL OCCUPATIONAL AND ENVIRONMENTAL MEDICINE

4 Quarter Hours Spring Quarter

The course constitutes a review of the health risks associated with chemical, physical, and biological exposures in the workplace. It provides an introduction to the complex work environment in which the occupational health specialist must function. Lecture presentations, assignments, and practical exercises will address methods to detect and prevent occupational illness and injury within the context of an occupational medicine service. Discussion will include the clinical presentation, evaluation, and clinical course of common occupational diseases; the effects of occupational exposures on specific organ systems; and the hazards associated with specific industrial processes. Students will gain experience in history-taking,

physical-examination techniques, and laboratory resources pertinent to the clinical practice of occupational and environmental medicine. Prerequisites: Concurrence of Course Director

PMO543 INTRODUCTION TO OCCUPATIONAL HEALTH

1 Quarter Hour Summer Quarter

This course provides an overview of general principles and current issues in the field of occupational health. Focus will be on the introduction of concepts relevant to the task of protecting the health of workers. Lecturers will review general elements of recognition, treatment, control, and prevention of occupational diseases and injuries. This course is primarily intended to be an orientation of occupational and environmental medicine and preventive medicine residents. Prerequisites: Concurrence of Course Director

PMO546 SELECTED TOPICS IN ENVIRONMENTAL/OCCUPATIONAL HEALTH

1-2 Quarter Hours Fall Quarter

This course will be organized as a series of faculty, student and guest presentations on various topics in environmental and occupational health. Examples of topics covered are occupational lung diseases, occupational neurology, occupational reproductive hazards, safety, ergonomics and environmental risk assessment and communication. Instruction will be primarily didactic with discussions of assigned readings and lecture material following each presentation. Selection of specific topics and credit hours will depend on the needs and interests of the students and topics chosen. Specific learning objectives will be developed for each reiteration of the course.

Prerequisites: Concurrence of Course Director

PMO547 CLINICAL OCCUPATIONAL MEDICINE

1-2 Quarter Hours Fall Quarter

Clinical occupational medicine involves methods of prevention, diagnosis, treatment, and rehabilitation of occupational and non-occupational diseases in the working population and their dependents. This course will provide the opportunity for the student to learn these methods on a selected basis in the areas of Dermatology, Pulmonary Medicine, Audiology, and Orthopedics/Sports Medicine. Emphasis will be pre-placement, return to work and disability evaluation. The setting of this experience will be the hospital and the clinic patients of the various specialties at Walter Reed Army Medical Center and the National Naval Medical Center.

Prerequisites: Must be credentialed medical provider and Concurrence of Course Director

PMO548 JOINT MEDICAL OPERATIONS AND HUMANITARIAN ASSISTANCE

3 Quarter Hours Fall Quarter

Lectures will present the student with a historical perspective on the importance of preventive medicine in controlling disease and non-battle illnesses during deployments. Using the current National Security and National Military Strategies as a starting point, an examination of those strategies in relationship to joint military deployments and the role of military medicine in international humanitarian relief will be made. The medical threat estimate and assessment processes will be studied, and a working knowledge of preventive medicine activities necessary before, during and after a deployment will be reviewed and applied to selected case studies. Current service staffing, organizations, doctrine and capabilities for medically supporting a deployed joint force will be examined in depth. Students will conduct a mock deployment planning and assessment exercise in class, as well as present (in groups) their independent assessment of an historical or recent joint military or humanitarian assistance deployment operation. Prerequisites: Pre-fall session for Fall, Concurrence of Course Director

PMO549 ESSENTIALS OF TOXICOLOGY

4 Quarter Hours Winter Quarter

This course will provide an introduction to the field of toxicology as it impacts individual health, population health, and the environment. Basic toxicology concepts including absorption, biotransformation, excretion, mechanisms of toxicity, mutagenesis, carcinogenesis, and teratogenesis will be covered. Organ system toxicity and the toxic effects of selected substances will be discussed. Students will be introduced to the methods and limitations of toxicity testing and risk assessment, and will become familiar with toxicology information sources. At the conclusion of the course they are expected to be able to evaluate the validity and reliability of toxicity information they are exposed to in the lay press, the scientific literature, and by regulatory agencies. Prerequisites: Concurrence of Course Director

PMO550 INDUSTRIAL HYGIENE I AND LABORATORY

4 Quarter Hours Spring Quarter

This course will cover the essentials of the practice of industrial hygiene through the concepts of hazard anticipation, recognition, evaluation and control. It is designed as an overview for those students with limited prior experience in industrial hygiene. Topics covered include threshold limit values and OSHA exposure limits, calculations of exposure data, classification of agents, monitoring techniques for particulates and gases/vapors, introduction to ventilation principles, noise, respiratory protection practices and physical hazards. The laboratory will familiarize students with commonly used industrial hygiene sampling equipment. Laboratories will emphasize calibration of sampling pumps, direct reading gas/vapor sampling equipment, sampling particulates, industrial ventilation, and industrial noise. Prerequisites: Concurrence of Course Director

PMO552 INDUSTRIAL HYGIENE II AND LABORATORY

4 Quarter Hours Fall Quarter

This course builds upon the concepts presented in Industrial Hygiene I and Laboratory. The class includes field trips to industrial facilities and to industrial laboratories. Upon completion of this course, the student will be capable of evaluating a wide variety of industrial exposure situations.

Prerequisites: PMO550, Concurrence of Course Director

PMO553 INDUSTRIAL HYGIENE FIELD STUDIES

1 Quarter Hour Summer Quarter

This course is designed to familiarize the student with functional industrial hygiene operations. This will be accomplished by a series of lectures that support field trips to military and civilian work sites. Industrial facilities will be toured and industrial hygiene operations reviewed on site. The practice of industrial hygiene in the workplace will be demonstrated. Prerequisites: PMO550/ Concurrence of the Course Director

PMO554 HEALTH EFFECTS OF IONIZING AND NON-IONIZING RADIATION

3 Quarter Hours Winter Quarter

Traditional ionizing radiation topics will be covered including, but not limited to basic battlefield effects, terrorist threats, and medical imaging. The background for current medical imaging techniques along with their limitations and precautions for use in military settings will be examined. Radio Frequency, microwave, and laser shipboard, battlefield and airfield medical effects will be discussed. A significant portion of the course will cover the latest lasers used on the modern battlefield, as well as medical procedures involving state of the art laser imaging, diagnosis and treatment. The course is designed as a survey to give the student a well rounded background of ionizing and non-ionizing issues concerning the health care professional. The

course assumes no prior background on the part of the student. It is set up so that students with a limited background in physics and mathematics can gain a conceptual understanding of the subject. Prerequisites: Concurrence of Course Director

PMO555 INDUSTRIAL VENTILATION

2 Quarter Hours Winter Quarter

This course is intended to give in-depth and specialized instruction in the areas of industrial ventilation systems and local exhaust hoods. The engineering design of industrial ventilation systems will be evaluated to include contaminate generation, principles of air flow, ventilation of specific contaminants, design of local exhaust hoods, layout and sizing of ducts, balancing ventilation systems, and selection of fans, collectors, and testing instruments. Upon completion of the course, the student should be able to evaluate the effectiveness of any industrial or laboratory ventilation system. Prerequisites: PMO550 & PMO552 and Concurrence of the Course Director

PMO581 RADIATION DOSIMETRY

2 Quarter Hours Winter Quarter

Students will be able to do internal dose calculations based on the methods used in ICRP 30 and ICRP 60, and based on the Medical Internal Radiation Dose (MIRD) method. Students will acquire a working knowledge of ICRP and NCRP reports relevant to the calculation of external and internal dosimetry calculations such as ICRP 51 "Data for Use in Protection Against External Radiation", NCRP Report No. 65 "Management of Persons Accidentally Contaminated with Radionuclides", etc. Students will acquire a working knowledge of NUREG/ CR-4884 "Interpretation of Bioassay Measurements" relevant to the calculation of internal dose. Students will learn the fundamental principles, design, and operating characteristics behind passive and active personnel dosimetry systems such as Electronic Personal Dosimeters (EPDs), Optically Stimulated Luminescent (OSL) dosimeters, EEPROM type dosimeters, Thermoluminescent Dosimeters (TLDs), Film Dosimetry, etc. Students will learn the fundamental principles, design, and operating characteristics of dosimetry area monitoring and environmental devices. Students will learn the fundamental principles of whole body, extremity, and environmental dosimetry.

Prerequisites: Concurrence of Course Director

PMO582 RADIATION BIOLOGY

2 Quarter Hours Spring Quarter

The use of ionizing radiation in medical and industrial applications continues to expand. For example, approximately 320 million diagnostic medical and dental x-ray procedures are performed each year in the US. This fact highlights the need to study and quantify the stochastic (chronic) and non-stochastic (acute) effects of ionizing radiation. At the end of the course the student will demonstrate an understanding of the fundamentals of ionizing radiation interactions with matter, human radiation exposure scenarios, fundamentals of radiation chemistry and cellular radiobiology, biological effects of low doses of ionizing radiation (chronic effects), radiation risks in perspective, biological effects of high doses of ionizing radiation (acute effects), and radiation accidents and biodosimetry. Prerequisites: Concurrence of Course Director

PMO584 INTRODUCTION TO HEALTH PHYSICS

3 Quarter Hours Fall Quarter

Upon the completion of the course, students will be able to: Describe the various modes of decay, determine the types of equilibrium achievable for chains of nuclides, describe the basic interaction mechanisms for all

types of ionizing radiation, recognize naturally occurring and man made radionuclides, calculate equilibrium activities and specific activities, perform basic activation calculations, understand the difference between roentgen and rad, and determine external and internal dose based on simplified scenarios. Prerequisites: Concurrence of Course Director

PMO585 ENVIRONMENTAL HEALTH PHYSICS

3 Quarter Hours Winter Quarter

Upon completion of this course, the student will be able to: Perform atmospheric modeling calculations using Pasquill Gifford equations for both continuous and puff sources and understand the model limitations; describe the accumulation of nuclides in a lake or pond and the doses associated with utilizing this water for drinking, fishing or swimming; determine doses from sewage effluents; understand MARSSIM and how to apply it; determine environmental sampling strategies; understand air, water, and soil sampling principals; calculate doses to personnel from various environmental pathways; and transportation of radioactive waste. Prerequisites: PMO584 & Concurrence of Course Director

PMO587 NUCLEAR REACTORS, CRITICALITY, AND SHIELDING

3 Quarter Hours Fall Quarter

Upon completion of this course, students will be able to explain basic atomic and nuclear physics concepts. They will be able to explain the interactions of radiation with matter. Students will learn the fundamental principles, design, and operating characteristics of several types of nuclear reactors including pressurized water reactors, boiling water reactors, heavy water reactors, liquid metal reactors, and research reactors. Students learn how to write a technical laboratory report and perform laboratory experiments in neutron activation and reactor criticality at the Armed Forces Radiobiology Radiation Institute (AFRRI). They will become familiar with and use available computer codes and programs used in radiation interactions, reactor modeling, and shielding design. Students will be able to do radiation and reactor shielding calculations. Students will be become familiar with nuclear reactor; safety, environmental, and regulatory issues. Prerequisites: Concurrence of Course Director

PMO588 INSTRUMENTATION OF IONIZING RADIATION

3 Quarter Hours Spring Quarter

By the end of this course students will be able to calculate all of the statistical descriptors associated with counting; and will demonstrate a fundamental understanding of radiation detectors including (1) Particle counting instruments, (2) Dose measuring devices, and (3) Neutron detectors. Students will also be able to determine calibration characteristics for a given detector and calculate theoretical response of detectors and understand their theoretical operation.

Prerequisites: PMO584 & Concurrence of Course Director

PMO589 INTRODUCTION TO MEDICAL PHYSICS

3 Quarter Hours Spring Quarter

This introductory course will cover three of the core disciplines of medical physics: Diagnostic and therapeutic radiological physics, and medical nuclear physics. At the end of the course the student will demonstrate an understanding of the diagnostic applications of x-rays, gamma rays from sealed sources, radio frequency radiation, magnetic fields and ultrasonic radiation; the therapeutic applications of x-rays, gamma rays, electron and charged particle beams, neutrons and radiations from sealed radionuclide sources; the diagnostic and therapeutic applications of radionuclides (except those used in sealed sources for therapeutic purposes); the equipment associated with their production, use, measurement and evaluation; and

the quality of images resulting from their production and use. Prerequisites: PMO581 & Concurrence of Course Director

PMO601 ENVIRONMENTAL HEALTH RISK ASSESSMENT

3 Quarter Hours Summer Quarter

This course will provide the tools for understanding the risk assessment process and effectively managing and communicating the results. Students will learn the US Environmental Protection Agency protocol for human and ecological risk assessment, and learn basic risk communication skills. Students will learn how to perform a risk assessment by completing a notional exercise based on a real life scenario. The course will be taught in cooperation with the Health Risk Assessment Program at the US Army Center for Health Promotion and Preventive Medicine (Aberdeen Proving Ground, MD). The course is taught 8 hours/day for 3 days, then the students return to USUHS to complete a risk assessment project. Prerequisites: PMO540 and Concurrence of the Course Director

PMO602 SOLID AND HAZARDOUS WASTES

3 Quarter Hours Spring Quarter

Students will learn about the collection, transfer, disposal by sanitary landfill, waste to energy, and resource conservation and recovery of solid wastes. In addition, classification of hazardous wastes, risks, Resource Conservation and Recovery Act, Hazardous and Solid Waste Act, Comprehensive Environmental Response, Compensation and Liability Act, Superfund Amendments and Reauthorization Act, hazardous waste management, treatment technologies, land disposal, groundwater contamination and rededication will also be presented. Lab time is devoted to problem solving exercises and site visits to waste material treatment, storage, handling and recycling operations. Prerequisites: PMO540 and Concurrence of the Course Director

PMO603 DEPLOYMENT ENVIRONMENTAL EXPOSURES

5 Quarter Hours Fall Quarter

Students will learn how environmental exposures are qualified, recorded, analyzed, and interpreted into usable information not only for ground commanders' immediate use, but subsequently for later use by DoD, the Veterans Administration, and others. Students will be offered the opportunity to go TDY/TAD with environmental experts during mission work relating to environmental exposure surveillance. Prerequisites: PMO540 and Concurrence of the Course Director

PMO604 FUNDAMENTALS OF HYDROLOGY AND WATER AND WASTEWATER TREATMENT PLANT DESIGN

5 Quarter Hours Spring Quarter

Topics will cover hydrology (Spring - 1 credit), water treatment plant design (Fall - 2 credits), and wastewater treatment plant design and operation (Winter - 2 credits.) Site visits to local municipal water and wastewater treatment plants will enhance the student's understanding of the processes. Prerequisites: PMO540 and Concurrence of the Course Director

PMO605 ANALYTICAL INSTRUMENTATION METHODOLOGIES IN ENVIRONMENTAL HEALTH

3 Quarter Hours Winter Quarter

The second-year MSPH student will examine the major instrumental methodologies used in the quantitative and qualitative analysis of samples taken during environmental health risk assessment or environmental health surveillance procedures. Methods examined will be atomic absorption spectrophotometry, mass

spectroscopy, inductively coupled plasma spectrometry, ICP-MS, ion and liquid chromatography, ELISA, PCR, radiochemistry and techniques. For each methodology the student will learn the scientific basis, equipment set-up and procedures, limitations, interferences, calibration, QA/QC, application, and sample preparation. The student will also understand the regulatory source of these methodologies and their application to different classes of environmental media, and the requirements for laboratory accreditation and certification. The course is conducted through lectures, demonstrations and laboratory exercises. The course grade is based on two examinations and course participation. The laboratories will be conducted at the U.S. Army Center for Health Promotion and Preventive Medicine, using a compressed time period. Prerequisites: Concurrence of Course Director

PMO606 NON-IONIZING RADIATION

3 Quarter Hours Spring Quarter

The electromagnetic spectrum, transmission and absorption, biological effects, units of exposure, protection standards, measurement and control of UV, IR, microwaves, and lasers for both military and industrial use will be examined in detail. Actual measurements will be performed in laboratories and at various local military bases. Prerequisites: Concurrence of Course Director

PMO607 ENVIRONMENTAL CHEMISTRY

4 Quarter Hour Spring Quarter

This course will provide students with the knowledge and experience needed to predict, study, and describe the origin and distribution of xenobiotic chemical species, and their properties that effect uptake into biological systems. Prerequisites: PMO540 & PMO549, 1 year of organic & inorganic chemistry, and Concurrence of Course Director

PMO630 ENVIRONMENTAL HEALTH POLICY

3 Quarter Hours Spring Quarter

Students will explore policy formulation, implementation, and evaluation for environmental health at DoD staff, DoD service (Army, Navy, Air Force), USPHS organizations, other Federal agencies, and national levels. The scope will include specific environmental health policy and current management concerns and issues. Lectures will cover risk assessment, risk management, environmental assessments, health hazard assessments, standard setting, restoring the environment, and more. Prerequisites: PMO540, Concurrence of Course Director

PMO631 ENVIRONMENTAL AND OCCUPATIONAL HEALTH CASE STUDIES

3 Quarter Hours Spring Quarter

From an in depth examination of selected case studies the class will identify policy issues from the perspective of the DOD, individual military services, and other federal agencies such as EPA, OSHA, and the US Public Health Service. The class will describe research requirements needed to address problems identified in the case studies. The class will formulate possible organizational changes and resource shifts needed to addresses issues raised by the in-depth examination, and list lessons learned from the perspective of public health/preventive medicine good practice, federal statutes and standards, DOD regulations, and service specific guidance and requirements. For the course grade, each student will independently research from the scientific literature a case study, prepare a written in-depth analysis, and provide a short oral briefing.

Prerequisites: PMO540,541,550,552/Concurrence of Course Director

PMO640 ENVIRONMENTAL/OCCUPATIONAL HEALTH SEMINAR

2 Quarter Hours Winter Quarter

The seminar will be organized as a series of presentations by faculty, students and visiting lecturers. The seminar is intended to allow presentations on current topics in the fields of industrial hygiene, safety, environmental health and occupational medicine. Additionally, the fall and spring seminars will provide faculty, residents and students the opportunity to present research projects and findings. Prerequisites: Concurrence of Course Director

PMO641 OCCUPATIONAL AND ENVIRONMENTAL HEALTH PROGRAM MANAGEMENT SEMINAR

1 Quarter Hour Winter Quarter

The seminar is organized as a series of faculty and guest presentations that outline management techniques appropriate to large occupational health programs. Group discussions by seminar members will follow the presentations. Prerequisites: Concurrence of Course Director

PMO651 HUMAN FACTORS ENGINEERING

3 Quarter Hours Fall Quarter

A practical introduction to the application of human physical, perceptive and cognitive abilities and behaviors, human performance engineering design criteria, and human factors principles and practices to the design of systems, subsystems, equipment and facilities. Topics include basic human factors research and design methods, perception, cognition, information reception and processing, decision theory, memory, judgement, performance capabilities and limitations in human-machine systems. Prerequisite: Concurrence of Course Director

PMO652 OCCUPATIONAL ERGONOMICS

3 Quarter Hours Winter Quarter

Introductory course in ergonomics covering human physical capabilities and capacities applied to the analysis and design of the workplace, tasks, tools and equipment. Topics include biomechanics, work physiology, psychophysics, workstations, tools, work procedures, design guidelines and standards, noise, vibration and heat stress. Special emphasis is placed on the recognition and control of work-related musculoskeletal disorders. Prerequisite: PMO651 and Concurrence of Course Director

PMO653 WORK ANALYSIS METHODS

3 Quarter Hours Spring Quarter

Survey of ergonomic analysis techniques using traditional industrial engineering approaches such as time-motion study and work sampling in the analysis of task demands and human performance. Topics include performance measures, function allocation, general and specific task analysis techniques (OWAS, RULA, Strain Index, PATH, NIOSH Lift Equation, etc.), human reliability and economic analyses. Prerequisites: PMO561 and PMO562

PMO654 SAFETY ENGINEERING

3 Quarter Hours Winter Quarter

Survey of safety concepts, legal concepts, qualitative and quantitative hazard evaluation, hazard classification, system life cycle safety applied to the design of tools, equipment and the environment to eliminate or control occupational safety hazards. Topics include system safety analyses, fault hazard

analysis, failure mode and effects analysis, fault tree analysis, errors and risk assessment codes. Prerequisite: Concurrence of Course Director

PMO655 CURRENT INJURY PREVENTION ISSUES AND INITIATIVES SEMINAR

2 Quarter Hours

Examination of injury prevention policies, initiatives, plans and current knowledge with special emphasis on the examination of analytic and intervention research studies and risk communication methods. Topics include current Department of Defense policies and initiatives, the Defense Medical Surveillance System (DMSS), epidemiologic studies, case studies and demonstration projects, behavioral issues and risk communication methods. Prerequisite: Concurrence of Course Director

PMO940 ENVIRONMENTAL/OCCUPATIONAL HEALTH DIRECTED STUDIES

1-12 Quarter Hours All Quarters

The student will conduct an independent study project concerning some specific aspect of environmental health, industrial hygiene or occupational health under the close supervision of his/her academic advisor. This course is designed for students working independently to explore a defined topical area or problem or on their MPH year final academic project. Selected students may utilize this independent study option to expand their knowledge in selected subject areas relative to the MPH, or occupational medicine and general preventive medicine residencies.

Prerequisites: Concurrence of Course Director

PMO941 ENVIRONMENTAL/OCCUPATIONAL HEALTH DIRECTED RESEARCH

1-12 Quarter Hours All Quarters

The student will conduct an independent research project in environmental and/or occupational health or industrial hygiene under supervision of his/her academic advisor. The research project will be designed to involve field studies, laboratory studies, and/or a policy study. A written report and an oral presentation will be required. Prerequisites: Concurrence of Course Director

PMO942 ENVIRONMENTAL/OCCUPATIONAL HEALTH DIRECTED ROTATIONS

1-12 Quarter Hours All Quarters

The student will gain relevant experience and specified knowledge, skills, and abilities while working closely with a mentor. The directed rotation will cover staff and technical functions of environmental/occupational health and/or industrial hygiene to include laboratory, field, and policy situations. Prerequisites: Concurrence of Course Director

EPIDEMIOLOGY AND BIOSTATISTICS

PMO502 INTRODUCTION TO SAS

1 Quarter Hour Winter Quarter

This course provides an introduction to the use and interpretation of SAS data analysis software.

Prerequisites: PMO503, PMO505

PMO503 BIOSTATISTICS I

3 Quarter Hours Fall Quarter

This course instructs students in the application of elementary statistical procedures commonly used in biomedical and public health research. Topics include techniques of exploratory data analysis, probability,

discrete and continuous statistical distributions, sampling procedures, confidence intervals, hypothesis testing, and sample size determination for experiments and observational studies. Prerequisites: None

PMO504 BIOSTATISTICS II

4 Quarter Hours Winter Quarter

This continuation of PMO503 covers many of the advanced statistical procedures commonly used in biomedical and public health research. Statistical methods include techniques for the analysis of contingency tables or frequency data, non-parametric methods, simple linear regression and correlation, principle of experimental design, analysis of variance, multiple regression, logistic regression, and analysis of survival data. Prerequisites: PMO503

PMO505 MICROCOMPUTER APPLICATIONS

1 Quarter Hour Summer Quarter

This course is an introduction to microcomputer software used for E-mail, file transfer, accessing the internet, managing references, and data analysis. Prerequisites: None

PMO508 BIOSTATISTICS III

3 Quarter Hours Spring Quarter

This course is designed primarily for the doctoral student. This course teaches advanced statistical concepts and models for the analysis of quantitative and qualitative biomedical data. The course begins with basic general linear model concepts followed by a series of statistical models used in biomedical data analysis including multivariate techniques, matrix algebra, and statistical theory. Students will work on real data and analytical problems using a statistical software package (like SAS.) Prerequisites: PMO502-504

PMO511 INTRODUCTION TO EPIDEMIOLOGY I

4 Quarter Hours Fall Quarter

This course introduces the student to basic epidemiologic principles. The course initially focuses on the measurement of disease rates in populations, then transitions into a course of instruction on the basic epidemiologic study designs. Instruction is provided through lectures and in-class laboratory exercises. Prerequisites: College Algebra; PMO503 (concurrent)

PMO512 INTRODUCTION TO EPIDEMIOLOGY II

4 Quarter Hours Winter Quarter

This course expands upon the introduction to epidemiologic study design presented in PMO511. Methodologic issues such as sampling, measurement error, bias and confounding, and data analysis are introduced and illustrated with research examples from each of the major epidemiologic disciplines (e.g., occupational, infectious disease.) Students' knowledge of the principles of study design, conduct, and analysis are solidified through a written proposal project.

Prerequisites: PMO503, 511, and 504 (concurrent)

PMO513 ADVANCED EPIDEMIOLOGIC METHODS

4 Quarter Hours Spring Quarter

This course expands upon the concepts and content of PMO511 and 512. Particular emphasis is placed on data analysis. Laboratory exercises and simulations provide the students with hands-on experience in solving selected epidemiologic problems. The course provides advanced material on epidemiologic data analysis, as

well as reviewing rates and measures, bias, confounding, and specific methodologic problems in epidemiology. Prerequisites: College algebra, PMO503, 504, 511, 512 and Concurrence of Course Director

PMO514 EPIDEMIOLOGY AND CONTROL OF INFECTIOUS DISEASE

2 Quarter Hours Winter Quarter

The natural history, distribution patterns, and risk factors of selected infectious diseases are discussed. Strategies for prevention or control are derived from such epidemiologic concepts as natural reservoir, modes of transmission, inapparent versus apparent infections, herd immunity, and the effects of immunization. Student participation in seminars and student presentations will constitute a major part of the course. Prerequisites: PMO511, Concurrence of Course Director

PMO515 EPIDEMIOLOGY AND CONTROL OF NON-INFECTIOUS DISEASES

2 Quarter Hours Spring Quarter

The current strategies for the control of selected non-infectious conditions are presented in the context of their epidemiology (definition, distribution patterns, natural history and risk factors of etiologic or prognostic significance). Prerequisites: PMO511, 512, Concurrence of Course Director

PMO516 DESIGN AND ANALYSIS OF EPIDEMIOLOGIC STUDIES

3 Quarter Hours Fall Quarter

This course is designed primarily for the doctoral student. The students will use the knowledge and abilities acquired in previous epidemiologic courses to conduct a cohort or a case-control study. This includes writing the study protocol, analyzing and interpreting the data, and writing a final report in the way of a journal article. The study will be based on existing databases and students will work under the supervision of a faculty member. Prerequisites: PMO513, Concurrence of Course Director

PMO519 OCCUPATIONAL AND ENVIRONMENTAL EPIDEMIOLOGY

2 Quarter Hours Spring Quarter

This course teaches the student the methods used in conducting epidemiologic studies of environmental and occupational exposures. A series of case studies will be used to demonstrate the methodological and analytical approaches used in studying disease risks associated with occupational and environmental exposure. Prerequisites: PMO511, 512, Concurrence of Course Director

PMO520 MOLECULAR EPIDEMIOLOGY

2 Quarter Hours Spring Quarter

This course reviews the application of techniques in molecular biology to the study of epidemiological problems. The range of techniques discussed includes variations of the polymerase chain reaction, nucleic acid hybridization, mutation screening, solid phase immunoassays, fluorescence activated cell scanning, and other immunoassay techniques. The application of these techniques is discussed in relation to the epidemiological study of transmission, pathogenesis, and etiology of infectious diseases, genetic predisposition to cancer and other diseases, gene discovery, and the genome project. A prerequisite for this course is the course, "Concepts in Molecular Biology and Immunology," unless the requirement is waived by the course director. It is the goal of these two related courses that each student will develop the capability to critically evaluate use of and apply molecular techniques in epidemiological studies.

Prerequisites: PMO521, Concurrence of Course Director

PMO521 CONCEPTS IN MOLECULAR BIOLOGY AND IMMUNOLOGY

2 Quarter Hours Spring Quarter

This course is intended as an overview of current concepts in molecular and cell biology and immunology that will serve as a useful background for understanding the application of molecular techniques to the study of epidemiological problems. Conceptual areas reviewed include the nature, synthesis, and function of macromolecules, cellular structure, organization and function, techniques in molecular biology commonly used in epidemiology, important principles and techniques in immunology, and genetics. The concepts are presented at a level appropriate for allied health professionals, or as an update for individuals with doctoral degrees in human or animal health fields. The course is generally intended as a prerequisite for the course, "Molecular Epidemiology," although individuals who are already knowledgeable about the areas covered may have the requirement for this course waived by the course director.

Prerequisites: Concurrence of Course Director

PMO522 META-ANALYSIS

1 Quarter Hour Spring Quarter

Using interactive, small group self-directed learning techniques, the course objectives are to (1) understand the strengths and weaknesses of meta-analysis and when the method is appropriate; (2) understand the steps of meta-analysis, including question definition, literature review, data abstraction, analysis and publication; and (3) understand the theory and statistical methods of meta-analysis including fixed and random effects models, tests of heterogeneity, publication bias, file drawer tests, and sensitivity analysis. Prerequisites: PMO503, 511 and Concurrence of Course Director

PMO611 CLASSIC STUDIES IN EPIDEMIOLOGY

1-3 Quarter Hours Winter Quarter

Students will analyze original articles in the medical literature that form the basis for current practices in epidemiology. Focus will be on the conceptual and methodologic advances in the field. Articles will be selected for discussion based on their quality, originality and, above all, on their influence on the field of epidemiology. Definitions of "classic" studies vary, but we will concentrate on those which changed the way epidemiologic studies are conducted and the way that epidemiologists think. Prerequisites: PMO511, and Concurrence of Course Director

PMO701 ADVANCED BIOMETRICS TUTORIAL

1-12 Quarter Hours All Quarters

Selected advanced topics in biometrics, not covered in other graduate courses, that are of interest to the student(s). Prerequisites: Concurrence of Course Director

PMO811 INDEPENDENT STUDY IN EPIDEMIOLOGY

1-12 Quarter Hours All Quarters

This course provides experience in epidemiologic investigations as well as programs of reading and research in specific areas of epidemiologic interest. Students work under the supervision of a faculty member. A proposal must be submitted to the faculty mentor for approval and credits are assigned commensurate with the complexity of the project. Prerequisites: Concurrence of Division Director

PMO911 RESEARCH IN EPIDEMIOLOGY

1-12 Quarter Hours All Quarters

This course teaches students methods in conducting epidemiologic studies. Under mentorship of a faculty member, the student may continue research already started or participate in research in progress at USUHS. Prerequisites: PMO511, 512, Concurrence of Course Director

HEALTH SERVICES ADMINISTRATION

PMO524 HEALTH CARE PERFORMANCE IMPROVEMENT

1 Quarter Hour Spring Quarter

This course addresses the framework for high performance represented by the Baldrige criteria and applies this framework to the improvement of healthcare processes. Students will use case studies and will apply concepts originally devised for the for-profit business sector to the healthcare market sector. Focus will be on determining the relative importance and impact of leadership, planning, data management, human resources and process management on organizational performance and profit.

PMO526 HEALTH SYSTEMS

4 Quarter Hours Fall Quarter

This course provides an overview of the organization and function of health services in the U.S., including the pluralistic nature of the systems, the behavioral and economic foundations for understanding its function, current research relating to the health system, and current policy issues in regard to the organization of health services. Prerequisites: None

PMO527 PRINCIPLES OF HEALTHCARE MANAGEMENT

3 Quarter Hours Winter Quarter

This course provides a survey of health care management principles, including health planning, managed care organizational structures, resource management, quality improvement, decision making theory, organizational development, human resource theory, and managerial style and technique. Prerequisites: None

PMO528 INTERNATIONAL HEALTH I

4 Quarter Hours Fall Quarter

This course introduces the structure and key issues of health and medical organizations in developed and developing countries with an emphasis on prioritization of International Health Projects, who funds these projects, and how decisions are made for such funding. Students will do a project determining a major health need and its potential solution in some region of the world. Several general issues underlying health will be discussed, including reproductive health, nutrition, and environment. We will also look at other concerns related especially to the military including bioterrorism and humanitarian assistance. Prerequisites: Concurrence of Course Director

PMO529 HEALTH CARE FINANCIAL MANAGEMENT

2 Quarter Hours Spring Quarter

This course provides the student with an overview of financial management in health care organizations and concepts influencing an organization's financial performance. The goal of the course is to familiarize students with health care resource and economic policy issues, and the interrelationship of business and clinical decision-making. The student will gain an understanding of how health care organizations are financed, to include sources of funding, budgeting and resource allocation, and will be able to describe the

impact of capitation and managed care on financial performance. The student will also be able to interpret financial statements and business case analyses. Prerequisites: Concurrence of Course Director

PMO532 QUALITY ASSESSMENT AND IMPROVEMENT IN HEALTH CARE

2 Quarter Hours Spring Quarter

This course provides students with a perspective on current quality of health care with attention to the measurement of quality and the methods for making improvements in critical areas. Subject matter will include national (Federal and non-governmental) and local programs for measurement and assessment; focus will be on how such information can be used to improve delivery and outcomes of health care. Prerequisites: Concurrence of Course Director

PMO533 DECISION MAKING IN HEALTH SERVICES

4 Quarter Hours Spring Quarter

This course is designed to acquaint students with quantitative and qualitative decision making tools needed for the assessment and continual improvement of health services activities. Prerequisites: Concurrence of Course Director

PMO534 MEDICAL ANTHROPOLOGY

2 Quarter Hours Fall Quarter

Medical anthropology has been a formal sub-discipline of anthropology for only the last several decades. It has generally been taught to anthropologists in order for them to better understand the culture being studied with an emphasis on the role of health promotion and disease treatment in the given cultural system. The goal of this course is to teach the understanding of culture and of medical anthropology (understanding medicine from the patient's point of view) to health professionals in order to increase understanding between the "healers" and the patients and from this would presumably flow better compliance and improved health outcomes. At the end of the course, students will be able to characterize barriers to health care produced by cultural differences, evaluate health-seeking behavior in a cross-cultural perspective, and characterize their own health care system perspectives as they relate to their own culture. Prerequisites: Concurrence of Course Director

PMO535 THE LAW OF HEALTH CARE

3 Quarter Hours Winter Quarter

This course provides an introduction to the law and the legal process in relation to health care administration, and is designed to provide the student an ability to deal with legal concepts in health care settings. Topics include constraints that the law and regulations impose on the health care industry, liability of health care providers, rights of patients, consent issues, and administrative law for health care organizations. Prerequisites: Concurrence of Course Director

PMO536 MATERNAL & CHILD HEALTH

1 Quarter Hour Spring Quarter

This course will provide a foundation in epidemiological concepts pertinent to maternal and infant health and infant mortality. It will also examine the relationship between biological, social and behavioral factors that influence these outcomes and will provide an overview of maternal and child programs domestic and international.

PMO537 CLINICAL DECISION MAKING

1 Quarter Hours Winter Quarter

This is an introductory course in the principles of medical decision making. The first part of the course deals with heuristics used by health care providers, probability assessment, and the performance characteristics of diagnostic tests. The second part of the course provides an overview of instruments used in health policy and the decision sciences, including decision trees, patient preference assessment, and cost-effectiveness analysis. For each session there are specially prepared handouts, problems, and in-class exercises based upon the Stanford medical decision making series. The seminar is interactive to encourage understanding, application, and teaching of the concepts. Prerequisites: Concurrence of Course Director

PMO538 HISTORICAL PERSPECTIVES OF INTERNATIONAL HEALTH

1 Quarter Hour Fall Quarter

The course will focus on the evolution of international health practices in different civilizations from antiquity to modern times, addressing social, political and economic issues. The course will highlight the emergence of the Western Medicine thinking and the clash with the Eastern Medical practices and subsequent outcomes. In addition, it will predict future trends from a historical perspective. By the conclusion of the course, students will understand the problems of public health provisions in different cultures and throughout ages, their interdependencies and evolution, including impact on modern practices and policies. Students will be able to extract the lesson-learned which can be applicable to decision making process in international health care planing and delivery, and will have developed a familiarity with the multicultural aspect of public health research and practice. Prerequisites: Concurrence of Course Director

PMO539 INTERNATIONAL HEALTH II

2 Quarter Hours Winter Quarter

This course builds on the information from Global Health I. This course will target several specific diseases including several infectious diseases, such as HIV/AIDS, and their impact on global health. The course will look at specific diseases which have been eradicated, nearly eradicated, or are being targeted directly, including a look to the future when chronic diseases will take center stage in the unfolding drama. Immunizations and the mechanisms for their delivery as well as other general preventive medical programs will be discussed. This course will also include discussions of health care systems around the world, using specific countries (China, Bolivia, Congo, Israel) as examples. Prerequisites: PMO528 and Concurrence of Course Director

PMO926 HEALTH CARE ADMINISTRATION DIRECTED RESEARCH

1-12 Quarter Hours All Quarters

Students undertake selected research projects emphasizing organizational and management studies and program evaluation. At times the project will include teaching a technique or methodology. More often the study will be an actual operational problem of a health agency. Prerequisites: Concurrence of Course Director

LABORATORY ANIMAL MEDICINE

PM0620 LABORATORY ANIMAL PREVENTIVE AND CLINICAL MEDICINE

2 Quarter Hours Spring Quarter (alternate yrs)

This course consists of lectures and practical exercises designed to present the contemporary preventive medicine strategies used in research facilities. Topics will include the development and maintenance of quality assurance and disease surveillance programs for the various species of animals used in research.

Diagnostic, radiographic, surgical techniques not covered in the species-specific classes are presented in this course. Prerequisites: Concurrence of Course Director

PM0621 LARGE ANIMALS IN RESEARCH

2 Quarter Hours Winter Quarter (alternate yrs)

This course covers the anatomy, physiology, nutritional and environmental requirements of ungulates and carnivores used in research. Spontaneous and naturally occurring diseases in specific species are discussed with their respective preventive, diagnostic, and clinical medicine strategies. The research applications of the species specific models for human disease are presented including both currently accepted and developing models. Prerequisites: Concurrence of Course Director

PM0622 RODENTS IN RESEARCH

2 Quarter Hours Fall Quarter (alternate yrs)

This course covers the anatomy, physiology, nutritional and environmental requirements, and nomenclature of rodents used in research. Spontaneous and naturally occurring rodent diseases are discussed with their respective preventive, diagnostic and clinical medicine strategies. The research applications of rodent models for human disease is presented including both currently accepted and developing models. Prerequisites: Concurrence of Course Director

PM0623 UNUSUAL SPECIES IN RESEARCH

2 Quarter Hours Spring Quarter (alternate yrs)

This course covers the anatomy, physiology, nutritional and environmental requirements of amphibians, fish, reptiles, birds, marine mammals, and other species used in research. Spontaneous and naturally occurring diseases in specific species are discussed with their respective preventive, diagnostic, and clinical medicine strategies. The research applications of the species specific models for human disease are presented including both currently accepted and developing models. Prerequisites: Concurrence of Course Director

PM0624 RESEARCH BIOMETHODOLOGY

2 Quarter Hours Fall (alternate yrs)

This course consists of lectures and practical exercises covering current research methods. The application of specific species or strains and techniques to various types of investigation. Due to the advances in sophisticated research techniques subject areas such as genetics and immunology include an initial review of concepts. Prerequisites: Concurrence of Course Director

PM0625 ANIMAL CARE AND USE PROGRAM ADMINISTRATION

2 Quarter Hours Winter Quarter (alternate yrs)

This course covers the policies, standards and regulations in the care and use of laboratory animals, including the colony management, cost accounting, facility maintenance and sanitation, NIH Grant application and peer review process, and the responsibilities of the Institutional Animal Care and Use Committee and the Attending Veterinarian. Prerequisites: Concurrence of Course Director

PM0626 CARE AND USE OF OLD WORLD PRIMATES IN BIOMEDICAL RESEARCH

2 Quarter Hours Fall (alternate yrs)

This lecture course will cover the taxonomy, biology, husbandry requirements, and research models of Old World Primates (OWP) commonly used in biomedical research. Lectures addressing diseases affecting OWPs and current diagnostic and therapeutic regimens will be a central theme used to discuss clinical

management strategies. Current laws and regulations affecting the use of all nonhuman primates in research will also be presented. Prerequisites: Concurrence of Course Director

**PM0627 INTRODUCTION TO DIAGNOSTIC PATHOLOGY IN LABORATORY
MEDICINE AND RESEARCH**

2 Quarter Hours Fall (alternate yrs)

This course is an introduction to diagnostic pathology principles and methods pertaining to laboratory animal medicine. Topics included are the selection of appropriate stains, clinical pathology diagnostic tests and interpretation. The identification of the gross, clinical, and histological presentations of diseases observed in laboratory animals. Prerequisites: Concurrence of Course Director

PM0628 CARE AND USE OF NEW WORLD PRIMATES IN BIOMEDICAL RESEARCH

2 Quarter Hours Winter (alternate yrs)

This lecture course will cover the taxonomy, biology, husbandry requirements, and research models of New World Primates (NWP) commonly used in biomedical research. Lectures addressing diseases affecting NWPs and current diagnostic and therapeutic regimens will be a central theme to the current clinical management strategies used to maintain the health of these important research animals. Additional topics will address environmental enrichment programs for nonhuman primates and zoonotic diseases linked to laboratory animals. Prerequisites: Concurrence of Course Director

PM0629 LABORATORY ANIMAL SURGERY

2 Quarter Hours Winter (alternate yrs)

Lectures, readings, and discussion will familiarize the student with the current surgical research resources, methods, and management issues. Emphasis is placed on the actions and applications of current anesthetics, analgesics and euthanasia agents for use in the biomedical research field. Presentations will also include the components and applications of the current diagnostic imaging and radioisotope systems used in biomedical research. Prerequisites: Concurrence of Course Director

PM0632 MANAGEMENT FACTORS AFFECTING RESEARCH RESULTS

2 Quarter Hours Spring (alternate yrs)

This in-depth course covers the key components of laboratory animal management plans which may introduce unwanted variables into research experiments. Subjects covered include facility maintenance and sanitation, nutrition programs, quality assurance programs, environmental and physiological factors. Biosafety requirements for animal studies and vivarium disaster response planning procedures will also be discussed. Prerequisites: Concurrence of Course Director

PM0633 RABBITS AND OTHER MODEL SYSTEMS IN BIOMEDICAL RESEARCH

2 Quarter Hours Spring (alternate yrs)

This course will present detailed discussions of the taxonomy, biology, and husbandry requirements of rabbits and ferrets used in biomedical research. Diseases affecting laboratory rabbits and ferrets will be presented with diagnostic and therapeutic medicine strategies. Lecture topics will also address the biomedical research applications and models of rabbits, ferrets, insects, immunodeficient rodents, gnotobiotic animals, and *Xenopus* frogs. Prerequisites: Concurrence of Course Director

PM0801 SELECTED TOPICS IN LABORATORY ANIMAL SCIENCE

1-3 Quarter Hours All Quarters

This seminar will cover the research methodologies, political policies, animal model developments, and laboratory animal husbandry advancements currently shaping the field of laboratory animal medicine. Discussion topics and readings will be selected from contemporary literature sources. Students will conduct literature reviews, prepare oral presentations, and lead group discussions on assigned topics. Prerequisites: Concurrence of Course Director

PM0802 LABORATORY ANIMAL SCIENCE DIRECTED STUDIES

1-12 Quarter Hours All Quarters

The student will conduct an independent study project concerning some specific aspect of laboratory animal science under the close supervision of his/her academic advisor. This course is designed for students working independently to explore a defined area of research. USULAMRP residents may utilize this independent study option to complete a research project in the second year of the residency. Prerequisites: Concurrence of Course Director

SOCIAL AND BEHAVIORAL SCIENCES

PMO530 THE SOCIAL AND BEHAVIORAL SCIENCES APPLIED TO PUBLIC HEALTH

4 Quarter Hours Summer Quarter

This survey course exposes students to aspects of the behavioral and social sciences which are relevant to public health. It is intended to make students more sophisticated analysts of health problems by increasing their understanding of how complex the human aspects of prevention are. Major scientific theories and models of health behavior are presented early in the quarter. The remainder of the course focuses on important social factors and specific behaviors, with an emphasis on primary and secondary prevention. Prerequisites: None

PMO531 HEALTH PROMOTION

3 Quarter Hours Winter Quarter

This course is designed for students already familiar with health behavior theory and want to learn how to plan and evaluate health promotion programs. While a program planning framework will be covered in lecture format, the development of practical skills will be emphasized throughout the quarter. Program implementation in different settings will be discussed, as will ethical issues relevant to health promotion. Prerequisites: PMO530, Permission of Course Director

PMO830 INDEPENDENT STUDY IN SOCIAL AND BEHAVIORAL SCIENCES

1-12 Quarter Hours All Quarters

Under the mentorship of a faculty member, students will conduct an independent study project in the social and behavioral sciences as they relate to public health. The objective is to acquire specific methodological skills or deepen their understanding of the field's science base.

Prerequisites: Permission of Course Director

TROPICAL PUBLIC HEALTH

PMO560 PRINCIPLES AND PRACTICE OF TROPICAL MEDICINE

6 Quarter Hours Spring Quarter

This course presents a comprehensive approach to the principles and practice of tropical medicine. Tropical illness will be presented from a major symptoms complex perspective, i.e., fever, diarrhea, coma, skin

lesions. Core immunologic mechanisms, as they manifest as clinical symptoms, will be featured, including vaccine rationales and clinical pathology. The basis for rational chemotherapy will be presented from a clinical pharmacological perspective, including the management of travelers taking multiple medications. Practical clinical epidemiology will be reviewed as it relates to disease outbreak investigations, disease surveillance, and disease epidemic control. This course will lay the foundation for the disease agent based course, the Walter Reed Tropical Medicine Course, presented in the next quarter. Prerequisites: Concurrence of Course Director

PMO561 MEDICAL PARASITOLOGY

4 Quarter Hours Summer Quarter

This course consists of lectures, practical exercises, and demonstrations covering the important helminthic and protozoan diseases of man. The life cycle, epidemiology, geographic distribution, pathology and immunology together with laboratory and field methods of diagnosis, treatment, and prevention are covered. Prerequisites: Concurrence of Course Director

PMO562 SELECTED DISEASES OF THE TROPICS

4 Quarter Hours Summer Quarter

This course will be made up of self-contained finite blocks covering specific disease subtitles such as malaria, schistosomiasis, trypanosomiasis, arboviral diseases, etc. Instruction will be didactic and cover the epidemiology, natural history, diagnosis, pathology and medical management of the diseases. The selection of diseases to be covered will depend on the needs and interests of the student(s). Prerequisites: PMO560 or Concurrence of Course Director

PMO563 CLINICAL TROPICAL MEDICINE

1-12 Quarter Hours All Quarters

This course consists of advanced and applied training in the diagnosis and management of diseases of the tropics that present special problems. The course is clinically oriented and exposes the student to patients at selected health care facilities in Asia, Africa, Central and South America. Emphasis is placed on the infectious diseases but noninfectious tropical diseases are also reviewed, emphasizing recent advances in diagnosis and treatment. Prerequisites: Concurrence of Course Director

PMO564 EPIDEMIOLOGY AND CONTROL OF ARBOVIRUSES

2 (Lec), 4 (Lab) Quarter Hours Spring (Lec) Summer (Lab)

This course covers the epidemiology, prevention and control of viruses that are biologically transmitted by arthropods such as mosquitoes and ticks. In addition, some of the important South American hemorrhagic fever viruses and the hantaviruses are covered. At the end of the course, students should have an extensive understanding of how these viruses may cause outbreaks of human disease in urban and/or rural environments, how to assess risk of exposure to these viruses, and how to prevent and/or treat these viral diseases. Lectures and discussions will cover topics such as arthropod infection and transmission of viruses, the epidemiology of various viruses carried by arthropods and rodents, clinical course and pathology of certain viral diseases, risk assessment of arthropod-borne virus transmission, prevention/control of arthropod-borne virus transmission, and development of new antiviral drugs. Students taking the laboratory will receive extensive training in the latest techniques for isolating, diagnosing, and cultivating certain viruses. All students will have a wide variety of current scientific articles to read and discuss. Prerequisites: Concurrence of Course Director

PMO565 VECTOR BIOLOGY

2 Quarter Hours Fall Quarter

This course presents an overview of vector biology as it relates to the epidemiological patterns of arthropod-borne diseases in human populations. Vector species of major arthropod-borne diseases will be selected to illustrate different types of disease transmission and to examine vector potential as influenced by climate and habitat, susceptibility to infection, vector longevity, length of extrinsic incubation, host preferences and the relationships between vector behavior, socio-cultural characteristics of human populations and disease incidence. The influence of vector biology on the methods and success of control efforts will be emphasized. The course will be presented in a series of lectures, discussions and class projects. Prerequisites: Concurrence of Course Director

PMO566 PHYSIOLOGICAL PARAMETERS OF VECTOR COMPETENCE

4 Quarter Hours Winter Quarter

This course presents essential aspects of arthropod physiology and basic physiological principles that regulate competence for transmission of disease agents. Lectures and discussions will cover subjects such as growth and metamorphosis of vectors, movement of the various life stages of vectors, sensory functions of vectors which aid in host location and feeding, digestion of blood in mosquitoes, and adaptation of different vectors to climatic stresses. Laboratories will demonstrate various physiological phenomena such as effects of hormones on growth and development of mosquitoes, ovarian development in mosquitoes, feeding stimuli for flies, effects of repellents on mosquito feeding, and effects of insecticides on mosquito locomotion. Prerequisites: Concurrence of Course Director

PMO567 CHANGING PATTERNS OF ARTHROPOD-BORNE DISEASES

4 Quarter Hours Fall Quarter

This course provides students with an overview of the current status of arthropod-borne diseases in the world today. Lectures and discussions will cover the biology and ecology of major groups of arthropod vectors, epidemiology of vector-borne diseases, arthropod-borne disease surveillance techniques and control measures. Laboratory sessions will acquaint students with the basic techniques used in medical entomology, including field collection methods, specimen preparation, preservation and storage, use of taxonomic resources for specimen identification and implementation of simple surveillance and control measures to reduce disease transmission. Prerequisites: Concurrence of Course Director

PMO568 MEDICAL ACAROLOGY

4 Quarter Hours Summer Quarter

This is a survey course designed to familiarize students with the major groupings of medically important mites, ticks, spiders and scorpions. Lectures will be presented on morphology, classification, behavior, ecology and control of the major groups of acarines, spiders and scorpions. Emphasis will be placed on those families of greatest medical importance. Procedures for collecting, preserving, clearing, mounting and identifying specimens will be covered in the laboratory sessions. Students will be required to complete a class project. Prerequisites: PMO567, Concurrence of Course Director

PMO569 MALARIA EPIDEMIOLOGY AND CONTROL

3 Quarter Hours Spring Quarter

This course covers the epidemiology, prevention and control of malaria parasites that are biologically transmitted by anopheline mosquitoes. At the end of the course, students should have an extensive understanding of how malaria parasites may cause outbreaks of human disease in urban and/or rural

environments, how to assess risk of exposure to these parasites, and how to prevent and/or treat malaria. Lectures and discussions will cover such topics as the history of malaria, the biology of the anopheline vectors and of the malaria parasite, the clinical course and pathology of malaria, current chemotherapy and chemoprophylactic regimens for malaria, immunological aspects of malaria and the prospect of vaccines against malaria, the epidemiology of malaria, and the strategies for the prevention and control of malaria. In the laboratory, the student will learn how to identify malaria parasites and vectors, to diagnose human malaria using various techniques, to grow the malaria parasites and vectors in the laboratory, to conduct malaria surveys, and to control the anopheline vectors. Prerequisites: Concurrence of Course Director

PMO570 MODERN TECHNOLOGY AND VECTOR-BORNE DISEASE

4 Quarter Hours Summer Quarter

This course provides an in-depth look at vector-host-parasite-reservoir relationships and the modern techniques utilized to study the causes of outbreaks of arthropod-borne human diseases. The lectures and discussions will focus on the factors that lead to the successful transmission of human pathogens by particular arthropod species under various ecological conditions. Laboratories will focus on utilizing the latest research techniques to examine various aspects of vector biology and disease transmission ecology. Students will have the opportunity to read and discuss a wide variety of current, cutting-edge scientific articles. Prerequisites: Graduate-level medical entomology course and Concurrence of Course Director

PMO571 BIOSYSTEMATICS IN MEDICAL ZOOLOGY

2 Quarter Hours Winter Quarter

This course will be presented in the form of lectures, discussion, demonstrations, and individual projects. The first half of the course will consist of lectures on the history and importance of systematics, the International Code of Zoological Nomenclature, the concept of species, sources of variation, population genetics and mimicry. The second half of the course will examine the major systems of biological classification and how behavioral, physiological, biochemical, and molecular techniques are applied in classifying medically important taxa.

Prerequisites: Concurrence of Course Director

Winter 2 Quarter Hours/Graded

PMO572 INTRODUCTION TO MEDICAL MALACOBIOLOGY

3 Quarter Hours Summer Quarter

This course is intended for students interested in the transmission of pathogens by invertebrates. It is designed to introduce students to those groups of mollusks which: (1) serve as passive agents for the dispersal of pathogens, including toxins; (2) actively inject neurotoxins into humans, and (3) serve as intermediate or paratenic hosts of helminthic parasites infecting humans and domestic animals. This course will cover those aspects of molluscan ecology, taxonomy, morphology, and physiology requisite to an understanding of the factors involved in the transmission of molluscan-borne diseases and the control of those mollusks. In addition, students will be introduced to techniques required for identification, collection, examination, maintenance and control of molluscan hosts. Prerequisites: Concurrence of Course Director

PMO573 EPIDEMIOLOGY AND PREVENTION OF VACCINE-PREVENTABLE DISEASES

1-2 Quarter Hours Summer Quarter

The primary focus of this course will be to provide updates on vaccine-preventable diseases, vaccine management and safety, and standard immunization practices. The course will feature a live interactive teleconference from the National Immunizations program at the Centers for Disease Control and Prevention

in Atlanta, GA. Topics to be discussed include (1) principles of vaccination, general recommendations on immunization, and the Childhood Immunization Initiative; (2) diphtheria, tetanus, pertussis, hepatitis B; (3) measles, mumps, rubella, varicella; and (4) polio, haemophilus influenzae type b and adult immunizations. For each vaccine-preventable disease, students will be able to name the most common symptom or sign, the major complications, the highest risk groups, characteristics and recommendations for use of the vaccine, identify contraindications to vaccination, and list vaccine adverse events. Prerequisites: Concurrence of Course Director

PMO574 REMOTE SENSING AND GIS METHODS IN PUBLIC HEALTH

4 Quarter Hours Fall Quarter

This course covers remote sensing, image processing, geographic information systems (GIS), and spatial analysis methods as applied to the field of public health. The goal of the course is to give students a combination of theoretical background, example applications in the literature and hands-on experience in using hardware and software that will enable students to use the techniques discussed class in a knowledgeable way in their research and future work in public health. The lectures will cover types of remote sensing imagery, image processing, photo interpretation of various imagery types, application of remote sensing to public health, overview and history of GIS, GIS data structures, entering data into a GIS, geographical analysis, cartographic presentation, and applications of GIS to public health. The laboratory will give students hands-on experience in public health uses of image processing and GIS software. Prerequisites: Concurrence of Course Director

PMO612 CLINICAL MEDICINE IN THE TROPICS

3-5 Quarter Hours Summer Quarter

This course consists of advanced and applied training, at the bedside, in the diagnosis and management of diseases in the tropics. Emphasis is placed on the infectious diseases, but non-infectious tropical disease problems are also reviewed. There will be extensive use of clinical cases from wards at hospitals associated with the University's overseas research and training program in tropical infectious diseases. Training conducted at NAMRU-3. Prerequisites: PMO650, Concurrence of Course Director

PMO613 HEALTH AND MEDICAL CARE IN THE TROPICS

4 Quarter Hours Spring Quarter

This course teaches public health and preventive medicine in the tropics at the practical level. The structure and capability of local private and public medical organizations will be presented by lecturers with direct experience. The role of international non-governmental, volunteer and U.S. government organizations will be defined. Maternal and child health, family planning, population control and chronic disease and disability, and disaster relief and refugee population management will be put in context. The importance of water supply, waste management, sanitation and environmental contamination will be presented. Economic development will be discussed as it relates to delivery of health care. Prerequisites: Concurrence of Course Director

PMO614 TROPICAL MEDICINE ROUNDS

2 Quarter Hours Spring Quarter

This is a clinical case management course, geared toward the diagnosis and treatment of actual clinical cases. X-rays, basic laboratory specimens and photographs will be available for consideration. Discussion will include differential diagnosis, specific treatment, complications, epidemiologic implications and preventive measures that could have avoided disease. Upon completion of this course the students should be able to (1)

develop a tropical medicine disease case management strategy, that is logical, realistic and comprehensive; (2) discuss the differential diagnosis of a patient symptom complex and recommend diagnostic and therapeutic actions; (3) know the chemotherapeutic treatment and case management strategy for common tropical diseases; and (4) devise a public health program to prevent further disease transmission in the community. Prerequisites: Concurrence of Course Director

PMO615 SAND FLIES AND DISEASES

3 Quarter Hours Winter Quarter

This course presents a thorough coverage of the phlebotomine sand flies and their importance as vectors of diseases such as the leishmaniasis, bartonellosis and sand fly fever. Particular emphasis is given to the leishmaniasis and the ecology of *Leishmania* transmission, including parasite-vector and vector-host interactions, sand fly and *Leishmania* surveillance and leishmaniasis prevention and control. The course also touches briefly on the biting midges and the diseases they transmit such as blue tongue and Oropouche viruses, and certain microfilariae. Students will gain an extensive understanding of sand fly and biting midge biology and ecology, and will be able to recognize sand flies and biting midges and identify important vector species using dichotomous keys. They will learn to organize and conduct sand fly and *Leishmania* surveys to assess the risk of human exposure, and will be able to recommend appropriate countermeasures for vector and disease suppression. Prerequisites: Concurrence of Course Director

PMO661 MEDICAL ZOOLOGY SEMINAR

1 Quarter Hours Winter/Spring Quarters

This seminar series presents reviews of current concepts and research in Medical Parasitology and Medical Entomology. Guest speakers, faculty members, postdoctoral fellows, and enrolled graduate students present weekly seminars on selected topics. As this seminar series is scheduled for two quarters, topics presented will vary each quarter. Students will present a review of their own research or currently published literature each quarter they are enrolled. Prerequisites: Concurrence of Course Director

PMO760 TROPICAL MEDICINE RESEARCH TUTORIAL

1-12 Quarter Hours All Quarters

Students, with faculty advice, will develop a study question for a directed research project during the overseas quarter. Background research of the medical/scientific literature will be required to formulate a hypothesis to be investigated. Laboratory procedures necessary for the study, but with which the student is unfamiliar, will be identified. This tutorial will include learning these techniques. There will be requirements for outside reading to understand the theory, as well as laboratory hands-on instruction to master the mechanics of the procedure(s) required to do the research project. Prerequisites: PMO560, Concurrence of Course Director

PMO761 IMMUNOPARASITOLOGY TUTORIAL

3 Quarter Hours Spring Quarter

This course covers the immune responses in hosts caused by parasites and the mechanisms of escape selected by the parasites. The student will gain knowledge in the immune responses, including non-specific mechanisms such as activated macrophages, neutrophils and eosinophils, and the humoral and cellular arms of the specific immune response to various human parasites. In addition, antigenic variation demonstrated in a number of protozoan parasites will be analyzed with reference to malaria and trypanosomiasis. The mechanisms which permit intracellular survival of *Leishmania* and *Toxoplasma* will also be assessed. The potential for immunization against human parasites, utilizing the state-of-the-art molecular biology

techniques is explored specifically with reference to malaria, trypanosomiasis, and schistosomiasis. Prerequisites: Concurrence of Course Director

PMO763 TUTORIAL IN MEDICAL ZOOLOGY

1-12 Quarter Hours All Quarters

The faculty will prescribe a literature review to cover a broad background in medical parasitology and vector biology. The students will meet with the faculty member for discussion of the material. Prerequisites: Concurrence of Course Director

PMO764 TUTORIAL IN AQUATIC BIOLOGY

4 Quarter Hours Summer Quarter

This course is designed to familiarize the student with the major groupings of aquatic arthropods, with emphasis on those families which are vectors of disease, which prey on disease vectors; and which serve as useful indicators of environmental pollution. Lectures will be presented on morphology, classification, behavior and ecology of the major groups. Procedures for collecting, preserving, mounting and identifying the different groups of aquatic arthropods will be covered in the laboratory sessions. Students will be required to develop and turn in an extensive collection, complete with field notes, of preserved and identified specimens of genera represented in the locale of Washington, DC. Prerequisites: Concurrence of Course Director

PMO861 TOPICS IN MEDICAL ZOOLOGY

1-12 Quarter Hours All Quarters

Topics of current research interest in medical parasitology or vector biology will be selected. The student will carry out a literature review and prepare an oral or a written report for presentation. The presentation may include a laboratory demonstration. Prerequisites: Concurrence of Course Director

PMO960 DIRECTED LABORATORY RESEARCH

1-12 Quarter Hours All Quarters

The student may elect a mini-project under the supervision of a faculty member. The aim of the directed research is to provide practical experience in laboratory methods and the acquisition of data of publishable quality. The graduate student will, with faculty review, design the study, conduct the experiments and data collection, do the appropriate analysis, including a literature review, and prepare an oral presentation and a written report. This directed research may be overseas. Prerequisites: Concurrence of Course Director

PMO962 DIRECTED CLINICAL RESEARCH

1-12 Quarter Hours All Quarters

A project under the supervision of a specified faculty member will be undertaken to meet the requirements of this directed clinical research course. The aim will be to provide practical experience in the clinical practice of medicine as it specifically relates to the tropics and to the development of research protocols that are related to the tropical condition. The graduate student will, with faculty review, design the study, conduct the experiments and data collection, do the appropriate analysis, including a literature review, and prepare an oral presentation and a written report. Prerequisites: Concurrence of Course Director

PMO963 DIRECTED FIELD RESEARCH

1-12 Quarter Hours All Quarters

The student may elect a mini-project under the supervision of a faculty member in a field study. The aim of this directed research is to provide practical field experience in epidemiological and clinical research. The graduate student will, with faculty review, design the study, conduct the experiments and data collection, do the appropriate analysis, including a literature review, and prepare an oral presentation and a written report. Prerequisites: Concurrence of Course Director

PMO964 RESEARCH IN MEDICAL ZOOLOGY

1-12 Quarter Hours All Quarters

Graduate students will conduct a project of original research under the supervision of a faculty member. The graduate student will, with faculty review, design the study, conduct the experiments and data collection, do the appropriate analysis, including a literature review, and prepare oral presentations and a written dissertation. Prerequisites: Concurrence of Course Director

PMO990 TRAVEL MEDICINE PRACTICUM

2 Quarter Hours Spring Quarter

This clinically oriented lecture and clinic care course will teach and demonstrate the principles of travelers' medicine from the perspective of the tourist and, to a lesser extent, the military unit. The course will consist of lectures and evaluation of patients. The Travel Clinic at the National Naval Medical Center will be used to teach the clinical requirements for preparing tourists and business travelers of all ages and health states to travel safely abroad. Students will be introduced to multiple sources of travelers' health information, including travel medicine computer software, published sources, and the Centers for Disease Control and Prevention via the Internet. Preventive medicine will be emphasized, including the use of vaccines, personal protective measure, and malaria chemoprophylaxis. After travel evaluation and care of ill travelers will be taught. Prerequisites: M.D., P.A., N.P., Concurrence of Course Director

DEPARTMENTAL COURSES

PMO583 SUBSTANCE ABUSE

3 Quarter Hours Fall Quarter

This course will review the breadth of knowledge known within the field of addiction medicine, with particular emphasis on the epidemiology, public health, health care delivery and effective interventions. Using a bio-psycho-social model, the varieties of drugs abused within the United States and overseas are reviewed. Specific attention is given to those drugs with have impact within the military. Methods of determining prevalence, incidence and impact of substance abuse are presented along with the advantages and disadvantages of the different methodologies, such as deterrence mandatory drug testing and self-report. Field trips to different types of treatment programs will allow interaction with providers and patients. Students are expected to actively participate in all class discussions. To add depth to the course, the student will focus on a specific area of interest, write a paper, and lead a class discussion on the topic. Prerequisites: Concurrence of Course Director

PMO586 SCIENTIFIC WRITING

1 Quarter Hour Fall Quarter

This course will review English grammar, highlighting the errors most commonly made in writing technical articles. It also will emphasize the characteristics of technical writing vs more casual and creative writing styles. The goal of this course will be to help each student develop a writing style that includes: (1) organizing a paper or article structurally, (2) producing a clear, succinct, grammatical document, and (3)

being able to edit their own written products for these characteristics. Prerequisites: Concurrence of Course Director

PMO670 PUBLIC HEALTH PRACTICUM

1-3 Quarter Hours All Quarters

Students will be given a variety of public health experiential training opportunities within military and civilian organizations in the local geographic area and possibly other more distant sites. Students will enhance their didactic learning experience by practical application, and they will acquire a broad public health perspective to specific health-related problems. Prerequisites: PMO503,511,526,530,540 and Concurrence of Course Director

PMO671 INTRODUCTION TO THE MPH PROJECT AND PRACTICUM

1 Quarter Hour Fall Quarter

This seminar course is designed to introduce students to the year-long process of the conception, development, execution, and reporting of their independent projects and practicum experiences. It includes brief presentations by guest speakers from various military and civilian organizations offering potential projects and practicums. Goal setting, time lines, and curriculum planning for successful completion of the MPH program will be integrated into the course. Students will be able to describe the criteria for an appropriate independent project and practicum activity, and formulate a short list of possible projects or practicums aligned with their personal and professional goals. Prerequisites: Concurrence of Course Director

PMO672 MPH PROJECT/PRACTICUM DESIGN AND DEVELOPMENT

1 Quarter Hour Winter Quarter

Building on the introductory course in this series, students will receive guidance on developing a pre-proposal and final proposal for their independent project, including instructor feedback and peer review. Discussions will focus on the criteria and format for different types of projects (i.e., grant proposal, policy formulation, needs assessment, program evaluation, etc.), the process for institutional assurances and human subjects research review and approval, animal care and use issues, and the synthesis and integration of public health principles into project design. Students will be encouraged to explore the possibility of combining their independent project with a practicum activity. Students will be able to develop and critique MPH project proposals and describe the process of institutional assurances and approvals for research projects. Prerequisites: Concurrence of Course Director

PMO673 MPH PROJECT/PRACTICUM IMPLEMENTATION AND EVALUATION

1 Quarter Hour Spring Quarter

In the third and last of this seminar series designed to guide students through the process of developing and completing their MPH independent projects and practicums, students will present and receive instructor feedback and peer review on project proposals, presentations, or reports, depending on individual progress. This course will be a forum for discussing and finding solutions to issues or problems related to study design, the IRB approval process, funding for travel or other budget items, barriers to study implementation, amendments to protocols, etc. Guest speakers may also reinforce the oral and written communication skills that are essential to public health practitioners. Students will be able to provide and receive peer review on project and practicum proposals, oral presentations, military briefings, project reports, policy papers, poster presentations, or audio-visual materials, as they are being drafted and revised, and demonstrate effective oral

and written communication skills when reporting research findings to various audiences. Prerequisites: Concurrence of Course Director

PMO674 MPH INDEPENDENT PROJECT

3 Quarter Hours All Quarters

This course is required of all MPH students to receive credit for the final phase and end products of their independent project to fulfill the program requirement for a "culminating experience." The independent project may take one of several acceptable forms and be developed and implemented over more than one academic quarter. Students receive an appropriate number of credits (pass/fail) for preliminary and interim work on the project by enrolling in other "independent studies" or "directed reading/research" courses in the PMB Department under the tutelage of their respective project mentors. This course provides a mechanism for students to receive credit for work done to complete the project, prepare an oral presentation, and write a final report. Prerequisites: All Core Courses

PMO680 INTRODUCTION TO PUBLIC HEALTH

1 Quarter Hour Summer Quarter

This course will include lectures on ethics, the history of preventive medicine, and effective oral and written presentations. The objective is to provide students with a solid background in these topics as a foundation for the rest of the academic year. Prerequisites: None

PMO681 CURRENT PROBLEMS AND PRACTICE OF PREVENTIVE MEDICINE AND PUBLIC HEALTH

1-3 Quarter Hours Summer Quarter

This course is designed to provide students with exposure to real-world issues from a variety of public health settings. Guest speakers are drawn from a variety of public health agencies and work settings, from local to national, including both civilian and military. Speakers describe the structure and function of their organizations, as well as the typical public health concerns they address. The theme is to demonstrate practical applications of epidemiology, biostatistics, environmental health, behavioral science, and health services administration. Prerequisites: None

PMO682 HISTORY OF PREVENTIVE MEDICINE

2-4 Quarter Hours Spring Quarter

The evolution and development of the medical and social aspects of public health and preventive medicine, and specialized disciplines (statistics, epidemiology) will be studied to explicate both the historical background of the present, and to extract the historical foundation for persistent concepts and functions. Prerequisites: Concurrence of Course Director

PMO683 CRITICAL READING SEMINAR

2 Quarter Hours Fall/Winter/Spring Quarters

The Critical Reading Seminar is part of the USUHS/WRAMC Fellowship Program in General Internal Medicine. It is designed to teach participants to read clinical literature critically, using epidemiologic and statistical techniques. The seminar in the Fall quarter is devoted to a study of the critical appraisal materials designed by the Department of Critical Epidemiology at McMaster University. Exercises are designed to provide a practical experience in employing McMaster's methodology to significant articles chosen to exemplify both excellent and problematic clinical investigation. Subsequently, participants choose their own critical reading packages. Each session is devoted to reading in depth about a single topic; all participants are

provided with three to five articles to read critically prior to the seminar. During the seminar, participants rotate as facilitators; all participants discuss the chosen articles. The articles reviewed are primarily from the internal medicine literature and deal with major topics in preventive medicine, epidemiology, and utilization of diagnostic technology, causation, quality of care, economic analysis, prognosis, and therapy. Prerequisites: Concurrence of Course Director

PMO684 CLINICAL RESEARCH SEMINAR

1 Quarter Hour Fall/Winter/Spring Quarters

The Clinical Research Seminar is part of the WRAMC/USUHS Fellowship Program in General Preventive Medicine. The seminars concentrate on how to design clinical investigation projects, with a particular emphasis on areas in academic general medicine, such as ambulatory care, geriatrics, medical interviewing, preoperative evaluation, clinical decision making, medical education, behavioral medicine, and health services research. Speakers emphasize methodologic issues and, in particular, explore problems associated with clinical research. About 1/3 of the seminars will be conducted by WRAMC or USUHS investigators; 1/3 will focus on special topics in clinical research; and 1/3 will be led by speakers invited from outside agencies and institutions. The format is informal to allow a brisk dialogue between participants and speakers. Students will see how principles of clinical research are implemented in actual projects, and will learn how to identify methodologic problems when designing protocols and reading the literature. (2 Tues/mo) Prerequisites: Concurrence of Course Director

PMO685 HEALTH POLICY SEMINAR

1 Quarter Hour Spring Quarter

The Health Policy Seminar is given as a part of the USUHS/WRAMC Fellowship Program in General Internal Medicine. Selected topics in both military and civilian medicine are addressed, such as biomedical ethics, legislative issues, health care utilization and manpower, and other health policy issues. Sessions will include invited speakers, selected readings with discussion, and occasionally a congressional field trip. Students will become more aware of how policy decisions impact upon the teaching and practice of medicine. (2 Thurs/mo) Prerequisites: Concurrence of Course Director

PMO688 INFORMATION GATHERING IN CLINICAL MEDICINE

2-12 Quarter Hours All Quarters

Information gathered in the clinical setting becomes data used in epidemiological and health outcomes research. This course will provide opportunities for students to learn from research-oriented practicing clinicians in a clinical setting. Students will learn the problems involved in collecting accurate information from patients through history-taking, physical examination, laboratory testing, and questionnaire administration. Teaching methods will center on observation of the physician at work and, as much as possible, active participation of the students in collecting data, and will include assigned readings and tutorials. Prerequisites: PMO511 & PMO512, Concurrence of Course Director

PMO690 EDUCATIONAL METHODS

2 Quarter Hours Fall Quarter

Examines theory and practice in the teaching and learning process. Introduces a wide spectrum of instructional methods for adult learners, curriculum development strategies, and evaluation methods. This course will prepare doctoral students to teach in their own topic area. Prerequisites: Concurrence of Course Director

PMO691 TEACHING PRACTICUM

3 Quarter Hours All Quarters

As one of the requirements of the Dr.P.H. program, students will act as Teaching Assistants for at least one course per year. In addition to providing assistance to the course director, they are expected to expand and deepen their knowledge of the material taught, sharpen their skills, and gain experience in giving lectures, leading seminars, supervising laboratory exercises, preparing and grading examinations, reviewing homework, and counseling students. Prerequisites: Concurrence of Course Director

PMO692 CLINICAL CONCEPTS FOR DOCTORAL STUDENTS - PART 1

2 Quarter Hours Spring Quarter

This required course is designed for Doctor of Public Health (DrPH) candidates. The DrPH curriculum focuses on the interface between health care systems and the population served. This seminar course will concentrate on the provider-patient interface at the level of the individual. Students will be introduced to the mainstays of clinical practice: diagnosis, treatment, prognosis, and prevention for individual patients. An overview of the pathophysiologic basis of disease will be presented along with basic concepts of clinical decision making. The organ system approach will be used to cover major disease categories. Case studies or clinical vignettes will be incorporated throughout the course to introduce students to medical terminology and to illustrate important concepts of medical practice. Students will gain a sense of the "mystery and majesty of the human condition" and the complexities of the healing process as they relate to the art and science of medicine. Prerequisites: Doctoral Student Status/Concurrence of Course Director

PMO693 CLINICAL CONCEPTS FOR DOCTORAL STUDENTS - PART 2

2 Quarter Hours Summer Quarter

This required follow-up course will continue to explore the concepts introduced in Part 1 and how these concepts relate to the major public health problems addressed in the "Healthy People 2010" goals and objectives. Major conditions of public health importance will be used to illustrate how clinicians integrate knowledge from the basic sciences with clinical reasoning skills to diagnose, treat, and prevent these illnesses. The practice of evidence-based medicine in various clinical settings will be presented, as well as clinical decision analysis as an approach to managing the uncertainty in clinical practice. Case studies will again be incorporated throughout the course to reinforce concepts and to foster discussion on the integration of these clinical concepts into the population-based practice of public health. The overarching purpose of this two-part course is for doctoral students with diverse backgrounds to acquire an understanding of the clinical domain of medical practice in order to facilitate partnerships among health professionals who share the common goal of improving the public's health, whether individually or at the population level. Prerequisites: PMO692 and Concurrence of Course Director

PMO881 MILITARY PREVENTIVE MEDICINE STUDY TOPICS

1-12 Quarter Hours All Quarters

The student, with the advice of the instructor, will select a topic of Military Preventive Medicine interest. It may be a current unresolved problem; an established procedure or traditional program; or a practice of the past. The topic may be approached as a program design, a program evaluation or as an historical review. The student will develop his information sources and in periodic tutorial sessions discuss with the instructor his data and the need and sources of more material. The final written report will be in military staff study format or as modified with the instructor's Concurrence. Prerequisites: Concurrence of the Instructor

PMO970 DIRECTED STUDIES IN PREVENTIVE MEDICINE

1-12 Quarter Hours All Quarters

The student will conduct an independent study project concerning some aspect of Preventive Medicine or Public Health. This course is designed for students working primarily on their MPH final independent project. Selected students will use this independent study project to expand their knowledge in a specific area of Preventive Medicine or Public Health. Prerequisites: Concurrence of Course Director

PMO971 PMB DOCTORAL STUDENT JOURNAL CLUB

1 Quarter Hour Fall/Winter/Spring Quarters

Each student in the class will read the selected scientific article and come prepared to discuss the salient points. A different student each week will present a current scientific paper published in the peer-reviewed scientific literature and lead the discussion. PMB faculty will attend the weekly seminar and are encouraged to join in the discussion. The major objective of the course is to develop and refine critical reading skills, refine presentation skills, and acquire knowledge. Prerequisites: Concurrence of Course Director

PMO972 CRITICAL THINKING SEMINAR

2 Quarter Hours Fall/Winter/Spring Quarters

The course is designed to strengthen students' logical and critical skills in evaluating arguments and policies; considering and constructing alternatives; and developing reasonable, persuasive positions of their own. Students develop these skills in evaluating works in ethics, epistemology, literature, science, and mathematics in short written essays and during student-directed in-class discussions. Prerequisites: Concurrence of Course Director