MASTER OF INFCTN PRVNTN & EPDM (MSI)

MSI 501 INTRODUCTION TO EPIDEMIOLOGY 3 Credit
Epidemiology is the study of the distribution and determinants of disease. It is the foundational science for infection prevention. The principles of epidemiology are used to solve global problems, such as an outbreak of Ebola in West Africa, and on a smaller scale, analyzing the spread of healthcare associated infections in one hospital. This introductory course will provide students the opportunity to research and evaluate key study designs and their application. Other important topics that will be covered include study screening and sampling, disease transmission and prevention, key components related to the chain of infection and risk factors in the spread of disease. Upon completion of this course, students will be able to understand fundamental concepts of epidemiology and apply them to real world scenarios, especially in relation to infection prevention within the healthcare setting.
Co-requisite(s): MSI 505
Grade Mode: Standard Letter, Pass/Fail
Course Offerings: Hybrid, Web Based

MSI 505 STATISTICS & RESEARCH METHODS 3 Credit
Infection prevention and epidemiology is founded in research and statistical methods to gather and interpret data. Knowing how to use and apply these skills is key in both acquiring needed data and interpreting the research results of others. This course will provide a foundational knowledge in research methods and use of statistics for the field of infection prevention and epidemiology. You will learn to use this knowledge to both design and conduct research and to evaluate the literature in this field. An emphasis is also placed on doing this work collaboratively with a team and in presenting findings and recommendations to a variety of audiences.
Pre-requisite: MSI 501
Grade Mode: Standard Letter, Pass/Fail
Course Offerings: Hybrid, Web Based

MSI 510 PRINCIPLES AND EPIDEMIOLOGY OF INFECTIOUS DISEASE 3 Credit
This course introduces fundamental principles of infectious disease epidemiology and infection prevention. Principles include nomenclature, epidemiologic characteristics, host-parasite relationships, trends, natural history, diseases of significance, standard and transmission-based precautions, screening methods, and outbreak investigation. Case-studies focus on infectious diseases/organisms commonly found in the healthcare setting, and those with significant impact to patient safety.
Pre-requisite: MSI 505
Co-requisite(s): MSI 515
Grade Mode: Standard Letter, Pass/Fail
Course Offerings: Hybrid, Web Based

MSI 515 MOLECULAR & IMMUNOLOGICAL METHODS IN INFECTIOUS DISEASE 3 Credit
This course offers a comprehensive view of modern immunology at the molecular and cellular level. The first half of the course presents the fundamentals of immunology, beginning with innate immunity and followed by a discussion of the structure and function of important molecules in the immune system, such as antibodies, major histocompatibility antigens, complement and the T-cell receptor. The second half of the course is focused on immunological and nucleic acid based methods as they pertain to medical diagnostics and infection prevention practices.
Pre-requisite: MSI 510
Grade Mode: Standard Letter, Pass/Fail
Course Offerings: Hybrid, Web Based

MSI 520 CLINICAL MICROBIOLOGY 3 Credit
Central to the role of an Infection Preventionist is knowledge of microbiology as it pertains to the clinical setting. A successful partnership between the lab and the Infection Preventionist is essential for controlling and preventing infections, as well as improving patient care. This course focuses on the central concepts of medical microbiology, taking into consideration the pre-analytical (i.e. specimen selection and collection), analytical (i.e. diagnostic identification and susceptibility testing methods), and post-analytical (i.e. test interpretation and reporting) components in clinical microbiology.
Pre-requisite: MSI 515
Co-requisite(s): MSI 525
Grade Mode: Standard Letter, Pass/Fail
Course Offerings: Hybrid, Special Topics/Problems, Web Based

MSI 525 ANTIMICROBIAL STEWARDSHIP 3 Credit
This course will explore the development of antimicrobials and the history of antimicrobial resistance, with special attention to the human behaviors that accelerated the development of multi-drug resistant microbes. Students will learn about the pharmacology of antimicrobials, including the pharmacokinetic and pharmacodynamic principles of antimicrobials. Specific mechanisms of microbial resistance in major hospital-acquired pathogens will be discussed in the context of designing an antimicrobial stewardship program that is responsive to emerging resistance trends.
Pre-requisite: MSI 520
Grade Mode: Standard Letter, Pass/Fail
Course Offerings: Hybrid, Web Based

MSI 530 REPROCESSING & ENVIRONMENT OF CARE 3 Credit
The risk of infectious disease transmission is not specific to person-to-person contact. The patient care environment, equipment, and supplies can play a major role in the acquisition of infections. This course focuses on the theory, research and practice of cleaning, disinfection, and sterilization of the Environment of Care and medical instrumentation.
Pre-requisite: MSI 520
Co-requisite(s): MSI 535
Grade Mode: Standard Letter, Pass/Fail
Course Offerings: Hybrid, Web Based

MSI 535 REGULATION AND QUALITY IMPROVEMENT 3 Credit
Infection Prevention (IP) is a highly regulated specialty area of health care, continually evolving with emerging infectious diseases, new technology and increasing regulatory requirements. It is essential for IPs to be knowledgeable about applicable laws, regulations and standards. Healthcare facilities are scrutinized for compliance with a myriad of rules and requirements. Non-compliance has significant potential safety, financial, legal and media implications. This course focuses on identifying the key federal, state and accrediting bodies that provide the rules that IPs must know to ensure compliance, develop policies, and effectively participate in a survey.
Pre-requisite: MSI 530
Grade Mode: Standard Letter, Pass/Fail
Course Offerings: Hybrid, Web Based

MSI 540 PRINCIPLES OF SURVEILLANCE AND REPORTING 3 Credit
This course introduces fundamental principles of infectious disease surveillance and reporting. Primary areas of focus include identification and evaluation of device and procedure-associated hospital-acquired infections. This course also focuses on utilizing surveillance data to conduct facility risk assessments and develop program plans.
Pre-requisite: MSI 535
Co-requisite(s): MSI 545
Grade Mode: Standard Letter, Pass/Fail
Course Offerings: Hybrid, Web Based

MSI 545 HEALTHCARE INFORMATICS & DATA MANAGEMENT 3 Credit
More than ever, today's healthcare professionals are called upon to provide personalized patient care safely and efficiently with measureable outcomes and an emphasis on prevention. The field of Health Informatics offers tools and strategies that leaders can use to influence the use of technology, data, and information to improve healthcare safety, quality, efficiency, and the healthcare consumer/patient experience. This course will highlight these approaches and topics will include key concepts, theories, tools, and technologies in the fields of health informatics and data management.
Pre-requisite: MSI 540
Grade Mode: Standard Letter, Pass/Fail
Course Offerings: Hybrid, Web Based

MSI 550 TRANSFORMATIONAL LEADERSHIP 3 Credit
Transformational leadership savviness is one leadership style that multiple organizations in business and healthcare have advocated for in the leaders they hire. How to inspire, motivate, challenge and develop loyal employees has been found by research to be a key component for successful, effective, and high quality-oriented service organizational outcomes. This course focuses on the theory, research and practice dimensions of transformational leadership – how to lead from the heart to transform complex organizational systems.
Pre-requisite: MSI 540
Co-requisite(s): MSI 699
Grade Mode: Standard Letter, Pass/Fail
Course Offerings: Hybrid, Web Based

MSI 592 SPECIAL TOPICS 6 Credit
Grade Mode: Standard Letter, Audit, Credit/No Credit
Course Offerings: Hybrid, Web Based

MSI 695 INTERNSHIP & CAPSTONE PROJECT 1 Credit
The capstone course is an opportunity for graduate candidates to synthesize, integrate and apply the skills and competencies they have acquired to an Infection Prevention and Epidemiology problem. Although the entire capstone is completed over 24 weeks in three sections, this first section is completed over 8 weeks in conjunction with course 9 of the MSI program. Using the appropriate processes, data collection methods, resources, change theories and principles, the graduate candidate will identify a preceptor, create a change project based on the needs of the internship facility, and submit a written proposal for the final capstone project. The capstone course demonstrates the culmination of learnings that result in the graduate candidate being able to perform the tasks of an Infection Preventionist competently and independently. Within the 60 hours of this first section of the capstone course, the graduate candidate and preceptor will discuss and decide on agreed upon specific learning outcomes and assignments to demonstrate skills and competencies for the appropriate topic at the graduate level.
Pre-requisite: MSI 550
Grade Mode: Standard Letter, Pass/Fail
Course Offerings: Internship, IN/FE/Rsrch/Thsis/Prjct/Capstn

MSI 697 INTERNSHIP & CAPSTONE II 1 Credit
The capstone course is an opportunity for graduate candidates to synthesize, integrate and apply the skills and competencies they have acquired to an Infection Prevention and Epidemiology problem. It will be completed over 8 weeks in conjunction with course 10 of the program. Using the appropriate processes, data collection methods, resources, change theories and principles, the graduate candidate will assess, create, implement and evaluate a change project based on the needs of the internship facility, and submit the final capstone project scholarly paper. The capstone course demonstrates the culmination of learnings that result in the graduate candidate being able to perform the tasks of an Infection Preventionist competently and independently. Within the 60 hours of this second section of the internship/capstone, the graduate candidate and preceptor will discuss and decide on agreed upon specific learning outcomes and assignments to demonstrate skills and competencies for the appropriate topic at the graduate level.
Pre-requisite: MSI 550
Grade Mode: Standard Letter, Pass/Fail
Course Offerings: Internship, IN/FE/Rsrch/Thsis/Prjct/Capstn

MSI 699 INTERNSHIP & CAPSTONE III 1 Credit
The capstone course is an opportunity for graduate candidates to synthesize, integrate and apply the skills and competencies they have acquired to an Infection Prevention and Epidemiology problem. It will be completed over 8 weeks in conjunction with course 11 of the program. Using the appropriate processes, data collection methods, resources, change theories and principles, the graduate candidate will assess, create, implement and evaluate a change project based on the needs of the internship facility, and present an oral defense of the final capstone project. The capstone course demonstrates the culmination of learnings that result in the graduate candidate being able to perform the tasks of an Infection Preventionist competently and independently. Within the 60 hours of this third and final section of the internship/capstone, the graduate candidate and preceptor will discuss and decide on agreed upon specific learning outcomes and assignments to demonstrate skills and competencies for the appropriate topic at the graduate level.
Pre-requisite: MSI 697
Grade Mode: Standard Letter, Pass/Fail
Course Offerings: Internship, IN/FE/Rsrch/Thsis/Prjct/Capstn