

# INFECTION PREVENTION & EPIDEMIOLOGY

**Program Coordinator: Frankie Lyons, Ed.D.**

The Master of Science in Infection Prevention & Epidemiology (MSI) degree is designed to create leaders who will use epidemiologic and infection prevention principles and tools to prevent infections and provide education across the care continuum. Acting as a change agent, the students who graduate from this program will use systems thinking, data, and evidence-based practice to facilitate collaboration to improve patient safety. A core benefit of this program is the diversity of professional students that stimulates exchanges and integrations of learning across care settings.

Although the field of Infection Prevention has historically been widely embraced in acute care hospital settings, the role and use of Infection Preventionists (IP) has expanded significantly over the past decade. This is in part due to the Institute of Medicine's 1999 report, "To Err is Human: Building a Safer Health System". This report focused attention on wide gaps existing within hospital patient safety practices (including Infection Prevention) and triggered a chain reaction that has since resulted in an intense focus on safety and quality improvement. The emerging critical need for Infection Prevention expertise has since been recognized as a key risk in many healthcare settings, extending beyond the walls of hospitals into ambulatory, long-term care and community service settings. This program will be instrumental in preparing students for a professional career as an IP in healthcare.

All courses are administered on-line and in 8-week formats for working professionals who are choosing this program as professional development in their current or future clinical role. The courses are taught by highly qualified faculty that represent diverse infection prevention & epidemiologic experiences and insights including statistical research, biology, pharmacy, environment of care, regulation, quality improvement, informatics and leadership. To maximize access to and completion of the program, coursework is presented via distance learning and a class size of 20 students.

There are three pre-requisite courses required for admission to the program:

- Microbiology (4 credits)
- Anatomy & Physiology (8 credits)
- Two A&P courses or
- One Anatomy course and One Physiology course taken separately
- Introduction to Statistics (3 credits)

The following program themes are woven throughout the curriculum:

- Transformational Leadership
- Identification, Prevention & Control of Infections
- Surveillance & Epidemiological Investigation
- Program Development & Integration
- Patient Safety & Quality
- Effective Communication
- Continuum of Care
- Influencing Human Behavior
- Inter-professional Collaboration

- Knowledge Sharing
- Life-long Learning

## Infection Prevention & Epidemiology Program Outcomes

Graduates in the MSI degree program demonstrate the following program learning outcomes:

- Lead inter-professional teams to design and implement infection prevention strategies.
- Identify and analyze infectious disease processes across the continuum of care.
- Develop and implement a comprehensive infection prevention program using research and evidence based practice to improve patient safety.
- Conduct surveillance and investigate epidemiological patterns to prevent transmission of infections.
- Synthesize complex information and educate healthcare communities.
- Assess the environmental and behavioral influences related to disease transmission.
- Apply data collections methods, applications, sampling systems and informatics to improve decision-making and accountability.
- Serve as an organizational resource for continuous learning and inquiry.

## Degree Requirements

Master's Degree Requirements

### Infection Prevention & Epidemiology (MSI)

Code	Title	Credits
MSI 501	INTRODUCTION TO EPIDEMIOLOGY	3
MSI 505	STATISTICS & RESEARCH METHODS	3
MSI 510	PRINCIPLES AND EPIDEMIOLOGY OF INFECTIOUS DISEASE	3
MSI 515	MOLECULAR & IMMUNOLOGICAL METHODS IN INFECTIOUS DISEASE	3
MSI 520	CLINICAL MICROBIOLOGY	3
MSI 525	ANTIMICROBIAL STEWARDSHIP	3
MSI 530	REPROCESSING & ENVIRONMENT OF CARE	3
MSI 535	REGULATION AND QUALITY IMPROVEMENT	3
MSI 540	PRINCIPLES OF SURVEILLANCE AND REPORTING	3
MSI 545	HEALTHCARE INFORMATICS & DATA MANAGEMENT	3
MSI 550	TRANSFORMATIONAL LEADERSHIP	3
MSI 695	INTERNSHIP & CAPSTONE PROJECT	1
MSI 697	INTERNSHIP & CAPSTONE II	1
MSI 699	INTERNSHIP & CAPSTONE III	1

**Total Credits Required: 36**

### Infection Prevention & Epidemiology (MSI)

**Plan Template: Infection Prevention and Epidemiology**

**Description: Master of Science**  
**# of Terms: 6**  
**Term Start: Fall**

Year 1		Credits
<b>Fall</b>		
MSI 501	INTRODUCTION TO EPIDEMIOLOGY	3
MSI 505	STATISTICS & RESEARCH METHODS	3
		<b>Credits 6</b>
<b>Spring</b>		
MSI 510	PRINCIPLES AND EPIDEMIOLOGY OF INFECTIOUS DISEASE	3
MSI 515	MOLECULAR & IMMUNOLOGICAL METHODS IN INFECTIOUS DISEASE	3
		<b>Credits 6</b>
<b>Summer</b>		
MSI 520	CLINICAL MICROBIOLOGY	3
MSI 525	ANTIMICROBIAL STEWARDSHIP	3
		<b>Credits 6</b>
<b>Year 2</b>		
<b>Fall</b>		
MSI 530	REPROCESS & ENVIRONMENT OF CARE	3
MSI 535	REGULATION AND QUALITY IMPROVEMENT	3
		<b>Credits 6</b>
<b>Spring</b>		
MSI 540	PRINCIPLES OF SURVEILLANCE AND REPORTING	3
MSI 695	INTERNSHIP & CAPSTONE PROJECT	1
MSI 545	HEALTHCARE INFORMATICS & DATA MANAGEMENT	3
MSI 697	INTERNSHIP & CAPSTONE II	1
		<b>Credits 8</b>
<b>Summer</b>		
MSI 550	TRANSFORM LEADERSHIP	3

MSI 699	INTERNSHIP & CAPSTONE III	1
		<b>Credits 4</b>
		<b>Total Credits Required: 36</b>

\*Plan templates are based on the most current catalog and ideal route for degree completion, and should only be used to get an idea of what degree completion may look like. New and enrolled students should log into DegreeWorks to see their specific degree requirements.