

## MS in MLS Course Descriptions

### **MLS 501 - Advanced Laboratory Practice: Technical Concepts (3 credits)**

*An examination of technical concepts and skills utilized to ensure quality in the medical laboratory. The course will focus on enhancing quality control analysis and method validation skills, and utilizing statistical tools to monitor and improve quality testing processes in the medical laboratory.*

### **MLS 502 - Advanced Clinical Hematology: Erythrocytes (3 credits)**

*A comprehensive study of human erythrocytes. Included are discussions of normal erythrocyte structure, function, production, regulation, and the pathophysiology of related disorders. The role of current laboratory testing in the diagnosis of erythrocyte disorders will be emphasized.*

### **MLS 503 - Advanced Clinical Hematology: Leukocytes (3 credits)**

*A comprehensive study of human leukocytes. Included are discussions of normal leukocyte structure, function, production, regulation, and the pathophysiology of related disorders. The role of current laboratory testing in the diagnosis of leukocyte disorders will be emphasized.*

### **MLS 505 - Advanced Laboratory Practice: Financial Management (3 credits)**

*This course presents an overview of financial management in medical laboratories. Students examine several basic financial operation concepts, including how to evaluate productivity, manage salaries, and manage supply inventories for maximum cost containment. Students learn how to plan for capital expenditures, set laboratory fee rates, and create, implement, and evaluate a budget.*

### **MLS 506 - Advanced Clinical Chemistry (3 credits)**

*An advanced study of the theories and principles of clinical chemistry. Correlation of laboratory results with associated disease pathophysiology will be emphasized.*

### **MLS 507 - Advanced Clinical Immunohematology (3 credits)**

*A detailed study of human blood groups including laboratory aspects of blood banking with special reference to theoretical and clinical applications. Emphasis will be placed on antibody identification and advanced problem solving techniques.*

### **MLS 509 - Medical Laboratory Education: Teaching Principles (3 credits)**

*Approaches to teaching in Medical Laboratory Science will be examined, with an emphasis on development of instructional and evaluative materials. Additional topics discussed will include learner diversity, classroom management techniques, and course assessment.*

### **MLS 513 - Advanced Clinical Immunology (3 credits)**

*An in-depth investigation of immune system functions. Correlation of laboratory results with normal and disease states will be emphasized.*

### **MLS 515 - Capstone in Medical Laboratory Science (2 credits)**

*This course is a summative experience that occurs at the end of the degree process. Graduate-level Medical Laboratory Science students reflect upon and consider applications of degree coursework. Additionally, the future of the medical laboratory science profession will be discussed and career opportunities will be explored.*

### **MLS 516 - Special Topics in Medical Laboratory Science (1-4 credits)**

*Topical courses in laboratory medicine organized on a semester by semester basis.*

### **MLS 517 - Advanced Laboratory Practice: Administrative Concepts (3 credits)**

*An examination of administrative concepts and skills utilized to ensure quality in the medical laboratory. The course will focus on advanced concepts related to medical laboratory accreditation, inspection, and federal regulations. An emphasis will be placed on the utilization of best practices to monitor and improve laboratory diagnostics.*

### **MLS 518 - Advanced Molecular Diagnostics (3 credits)**

*An overview of specific molecular biology application in the medical laboratory including correlation of cell biology, DNA chemistry, genetics, and laboratory techniques in relation to diagnostic investigations.*

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### **MLS 522 - Advanced Clinical Bacteriology (3 credits)**

*An advanced study of the laboratory diagnosis of bacterial diseases and an in-depth exploration of antibacterial agents.*

### **MLS 523 - Advanced Non-Bacterial Microbiology (3 credits)**

*An advanced study of the laboratory diagnosis of viral, fungal, and parasitic diseases and of associated antimicrobial agents.*

### **MLS 524 - Current Trends and Issues in Medical Laboratory Science (2 credits)**

*This course is an introductory experience that occurs at the beginning of the degree process. Through group discussion and presentations, Medical Laboratory Science graduate students will explore current trends and issues related to all aspects of the profession.*

### **MLS 525 - Professional Communication in the Medical Laboratory (3 credits)**

*This course will focus on developing written and oral communication skills as a foundation for application within the medical laboratory profession. Students will learn how to identify, assess, and incorporate appropriate reference materials to prepare professional, scholarly papers and presentations.*

### **MLS 526 - Advanced Clinical Hemostasis (3 credits)**

*A comprehensive study of the human hemostatic system. Normal function, disease pathophysiology, and the evolution of hemostasis in healthcare will be discussed. The laboratory's role in the diagnosis and/or monitoring of bleeding and clotting disorders will be emphasized.*

### **MLS 527 - Medical Laboratory Education: Assessment and Accreditation (3 credits)**

*This course will focus on assessment and accreditation specific to medical laboratory education programs. Topics will include examination of assessment at the classroom, program, and institutional levels, including how to create and implement an assessment plan. Medical laboratory education accreditation processes will also be examined, with an emphasis on the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) standards.*

### **MLS 530 – Medical Laboratory Leadership: Principles & Practice (1 credit)**

*This course will provide an overview of leadership principles and their relation to the medical laboratory profession.*

### **MLS 531 – Medical Laboratory Leadership: Practical Applications (1 credit)**

*This course will focus on application of leadership strategies within the medical laboratory profession.*

### **MLS 532 – Medical Laboratory Leadership: Conflict Resolution (1 credit)**

*This course will focus on developing strategies and skills for conflict resolution within the medical laboratory profession.*

### **MLS 589 – Readings in Medical Laboratory Science (1 credit)**

*Examination of applicable literature related to Medical Laboratory Science as part of an area of specialization or interest.*

### **MLS 590 - Project Development (1 credit)**

*With faculty/advisor consult, the student will identify a topic and develop a proposal for the Independent project completed in MLS 997. Initial scholarly investigation of the topic will occur, and general guidelines for project format and content will be established.*

### **MLS 591 - Directed Study in Laboratory Medicine (1-4 credits)**

*Designed to meet the needs of individual student-focused studies in laboratory medicine.*

### **MLS 997 - Independent Study (2 credits)**

*The independent study is a culminating experience for Medical Laboratory Science graduate students. Utilizing skills and information acquired throughout the degree process, students will select, investigate, and present findings of a topic with significance to the major field of study.*