CLINICAL LABORATORY SCIENCE (CLSC)

CLSC 150. Current Topics in Clinical Laboratory Medicine. 1 Credit.
A survey of topics in laboratory medicine including transfusions, forensic science, infectious diseases, and hematologic diseases.
Grading status: Letter grade.

CLSC 410. Laboratory Mathematics. 1 Credit.
Permission of the instructor for nonmajors. Basic mathematical principles, calculations, quality assurance, and method validation relevant to the clinical laboratory.
Grading status: Letter grade.

CLSC 410L. Basic Laboratory Skills. 1 Credit.
Majors only. An introduction to the basic skills associated with the clinical laboratory. Includes topics such as the proper technique for pipetting, calibration of pipettes, operation of the centrifuge and the spectrophotometer, and the formulation of standard curves and control ranges.
Grading status: Letter grade.

CLSC 420. Urinalysis and Body Fluids. 1 Credit.
Permission of the instructor for nonmajors. The physical, chemical, and microscopic analysis of body fluids in the clinical laboratory with an emphasis on correlation of laboratory data.
Grading status: Letter grade.

CLSC 420L. Urinalysis Laboratory. 1 Credit.
For clinical laboratory science majors only. The physical, chemical, and microscopic examination of urine with an emphasis on the correlation of laboratory data.
Grading status: Letter grade.

CLSC 430. Biochemistry. 3 Credits.
Permission of the instructor for nonmajors. Physiological biochemistry of the metabolic pathways and alterations in selected diseases. Also includes principles and applications of molecular techniques in the clinical laboratory.
Grading status: Letter grade.

CLSC 440. Hematology I. 2 Credits.
Permission of the instructor for nonmajors. Introduction to normal hemopoiesis, blood cell function and identification, hematologic tests, principles of hemostasis, and hemostasis disorders.
Grading status: Letter grade.

CLSC 440L. Hematology I Laboratory. 1 Credit.
Permission of the instructor for nonmajors. Basic clinical assays for identification and evaluation of erythrocytes, leukocytes, and platelets with an emphasis on microscopy. Also includes coagulation testing.
Grading status: Letter grade.

CLSC 442. Hematology II. 3 Credits.
Majors only. Hematologic disorders involving erythrocytes and leukocytes, with an emphasis on the analysis and interpretation of laboratory data.
Grading status: Letter grade.

CLSC 442L. Hematology II Laboratory. 1 Credit.
Majors only. Microscopic identification and evaluation of abnormal erythrocyte and leukocyte morphology, correlation with other laboratory data, and clinical interpretation.
Grading status: Letter grade.

CLSC 450. Immunology. 3 Credits.
Permission of the instructor for nonmajors. Basic immunology and serology. Innate and immune body defenses. The development and properties of cellular and humoral elements and their alterations in pathological and other conditions.
Grading status: Letter grade.

CLSC 450L. Immunology Laboratory. 1 Credit.
Permission of the instructor for nonmajors. Laboratory evaluation of body defenses and correlation with disease states. Clinical serological analyses include examples of basic techniques and correlation with immunity.
Grading status: Letter grade.

CLSC 460. Microbiology I. 2 Credits.
Permission of the instructor for nonmajors. Study of the life cycles and the infective mechanisms of the human parasites. Pathology of parasitic infections and public health considerations.
Grading status: Letter grade.

CLSC 460L. Microbiology I Laboratory. 1 Credit.
Majors only. Clinical laboratory diagnostic methods for human parasitic and fungal infections. Microscopic morphology of fungal organisms and parasites, including their various life cycle forms.
Grading status: Letter grade.

CLSC 462. Microbiology II. 2 Credits.
Majors only. A comprehensive course describing bacteria that infect humans. Correlation of diseases and pathological mechanisms of bacteria.
Grading status: Letter grade.

CLSC 462L. Microbiology II Laboratory. 2 Credits.
Majors only. Laboratory sessions provide practical experience in clinical identification of bacteria.
Grading status: Letter grade.

CLSC 470. Clinical Chemistry. 3 Credits.
Majors only. An introduction to the methods of analysis used in the clinical chemistry laboratory. Emphasis on the correlation of chemistry laboratory values with disease states.
Grading status: Letter grade.

CLSC 470L. Clinical Chemistry Laboratory. 2 Credits.
Majors only. Performance of clinical laboratory assays for significant biochemical molecules. Principles of analysis, quality control, method evaluation, and basic laboratory instrumentation are presented.
Grading status: Letter grade.

CLSC 480. Immunohematology. 3 Credits.
Majors only. Introduction to blood group serology with an emphasis on the major blood group systems, pretransfusion testing, and antibody identification.
Grading status: Letter grade.

CLSC 480L. Immunohematology Laboratory. 2 Credits.
Majors only. Laboratory techniques for red cell typing, antibody identification, and pretransfusion testing.
Grading status: Letter grade.

CLSC 540. Clinical Hematology Laboratory. 4 Credits.
Majors only. Laboratory rotation in clinical hematology.
Requisites: Prerequisite, CLSC 440.
Gen Ed: EE-Field Work.
Grading status: Letter grade.
CLSC 542L. Clinical Hemostasis Laboratory. 2 Credits. 
Majors only. Laboratory rotation in clinical coagulation. 
Requisites: Prerequisite, CLSC 440. 
Grading status: Letter grade.

CLSC 550L. Clinical Immunology Laboratory. 1 Credit. 
Majors only. Laboratory rotation in clinical immunology. 
Requisites: Prerequisite, CLSC 450. 
Grading status: Letter grade.

CLSC 560L. Clinical Microbiology Laboratory. 4 Credits. 
Majors only. Laboratory rotation in clinical microbiology. 
Requisites: Prerequisite, CLSC 460. 
Grading status: Letter grade.

CLSC 570L. Clinical Chemistry Laboratory Rotation. 4 Credits. 
Majors only. Laboratory rotation in clinical chemistry. 
Requisites: Prerequisite, CLSC 470. 
Grading status: Letter grade.

CLSC 580L. Clinical Immunohematology Laboratory. 4 Credits. 
Majors only. Laboratory rotation in clinical immunohematology. 
Requisites: Prerequisite, CLSC 480. 
Gen Ed: EE-Field Work. 
Grading status: Letter grade.

CLSC 582L. Clinical Transplantation Medicine Laboratory. 1 Credit. 
Majors only. Clinical rotation in histocompatibility, flow cytometry, and 
hematopoietic progenitor cell laboratories. 
Requisites: Prerequisite, CLSC 480. 
Grading status: Letter grade.

CLSC 610L. Clinical Laboratory Methods. 1 Credit. 
An introduction to the basic skills associated with the clinical laboratory, 
including laboratory math and quality assurance. 
Grading status: Letter grade.

CLSC 620. Clinical Laboratory Management. 2 Credits. 
Majors only. Foundation in the technical and nontechnical aspects of 
supervision and management of clinical laboratory testing. 
Grading status: Letter grade.

CLSC 630. Research Methods in Clinical Laboratory Science. 2 Credits. 
Majors only. An overview of the knowledge of research design and 
methods commonly used in the clinical laboratory research arena, 
providing the basis for the critical examination of professional literature. 
Gen Ed: CI. 
Grading status: Letter grade.

CLSC 650. Clinical Laboratory Science Laboratory Administration. 3 Credits. 
Foundation in the technical and nontechnical aspects of supervision and 
management of clinical laboratory testing. 
Grading status: Letter grade.

CLSC 670. Clinical Laboratory Science Educational Methods. 2 Credits. 
Majors only. Introduction to the basic principles of clinical laboratory 
education, including objectives, learning formats, test development, and 
clinical teaching. 
Repeat rules: May be repeated for credit. 2 total credits. 1 total 
completions. 
Grading status: Letter grade.

CLSC 700. MDS Principles. 3 Credits.
CLSC 720. MDS Applications. 3 Credits.
CLSC 720L. MDS Appl Lab. 3 Credits.

CLSC 730. Research Methods. 3 Credits. 
An overview of research design and methods used in clinical laboratory 
research. The course covers methodological and ethical considerations 
influencing research design and prepares student to critically examine 
professional literature.

CLSC 735. Method Evaluation. 3 Credits. 
This course covers the knowledge and skills needed to determine the 
clinical value, diagnostic accuracy, and cost of establishing a new assay 
in a molecular diagnostic laboratory.

CLSC 740L. Molecular Diagnostic Science Clinical Laboratory Rotation. 7 Credits. 
Majors only. Rotation in a clinical molecular laboratory in which the 
student will perform molecular assays, apply quality control, interpret 
results, and correlate results with the clinical condition.

CLSC 741L. Clinical Molecular Diagnostic Techniques I. 2 Credits. 
Clinical rotation in a molecular oncology, molecular genetics, or molecular 
infectious disease laboratory.

CLSC 742L. Clinical Molecular Diagnostic Techniques II. 2 Credits. 
Second clinical rotation in a molecular oncology, molecular genetics, or molecular 
infectious disease laboratory.

CLSC 743L. Clinical Molecular Diagnostic Techniques III. 3 Credits. 
Third clinical rotation in a molecular oncology, molecular genetics, or molecular 
infectious disease laboratory. Includes a research project.

CLSC 740L. Molecular Diagnostic Science Clinical Laboratory Rotation. 7 Credits. 
Clinical rotation in a molecular oncology, molecular genetics, or molecular 
infectious disease laboratory.

CLSC 743L. Clinical Molecular Diagnostic Techniques III. 3 Credits. 
Clinical rotation in a molecular oncology, molecular genetics, or molecular 
infectious disease laboratory. Includes a research project.

CLSC 750. Molecular Diagnostics in the Corporate Setting. 3 Credits. 
This course covers the development of in vitro diagnostic molecular 
methods with clinical applications. Topics include the research 
and development process, technical documentation, product 
commercialization, and IVD regulatory issues.

CLSC 770. Educational Methods and Applications. 3 Credits. 
This course provides an overview of educational methods to prepare 
students for future roles as educators in clinical laboratories, educational 
programs and in corporate settings. Topics include continuing education, 
competency assurance, certification and accreditation.

CLSC 780. Capstone Seminar. 3 Credits. 
Majors only. Application of knowledge and clinical skills acquired in 
MMDS courses to prepare a written manuscript suitable for publication. 
The manuscript will describe the method validation study performed in 
the clinical setting and include relevant literature review and abstract, 
introduction, methods and materials, statistics, results, discussion, 
conclusion, and references.