Clinical Laboratory Science Courses

Courses

CLSC 2111. Molecular Diagnostics Lab.
This laboratory provides the basic skills necessary for performing and applying molecular techniques used in molecular pathology as described in CLSC 2310. The course will focus on the specific applications of molecular techniques within a variety of disciplines such as infectious disease, hematology, immunology, hemostasis, forensic science, and transplantation immunology. Prerequisites: BIOL 1305, BIOL 1107, BIOL 3320, and CHEM 1306, each with a grade of C or higher. Corequisite: CLSC 2310.
Department: Clinical Laboratory Science
1 Credit Hour
3 Total Contact Hours
3 Lab Hours
0 Lecture Hours
0 Other Hours
Prerequisite(s): (BIOL 1107 w/C or better AND BIOL 1305 w/C or better ) AND (BIOL 3320 w/C or better ) AND (CHEM 1306 w/C or better)

Corequisite(s): CLSC 2310

CLSC 2210. Intro to the Clinical Lab.
Introduction to the Clinical Laboratory (2-0) Information on the careers available in the clinical laboratory as well as an overview of each department in clinical pathology will be presented. Tours of hospital, reference labs, and specialized clinical laboratories will be arranged. This course includes the principles and practices of quality control and pre-analytical, analytical, and post analytical components of urine and body fluid analysis. Prerequisites: (BIOL 1305 and BIOL 1107) and (CHEM 1306 and CHEM 1106).
Department: Clinical Laboratory Science
2 Credit Hours
2 Total Contact Hours
0 Lab Hours
2 Lecture Hours
0 Other Hours
Prerequisite(s): (CHEM 1106 w/C or better AND CHEM 1306 w/C or better ) AND (BIOL 1107 w/C or better AND BIOL 1305 w/C or better)

CLSC 2211. Med Diagnostic Applications.
Medical Diagnostic Applications (1-2) This course will encompass diagnostic applications in the clinical laboratory. Areas covered will include: genetics, molecular techniques, laboratory mathematics/statistics, quality control and quality assurance including pre and post-analytical assurance and teh application of safety to laboratory practice. A laboratory fee is required. Restricted to major: CLIN. Prerequisites: CHEM 1306, BIOL 1306, and MATH 1411 each with a grade of "C" or better and department approval.
Department: Clinical Laboratory Science
2 Credit Hours
3 Total Contact Hours
2 Lab Hours
1 Lecture Hour
0 Other Hours

CLSC 2212. Clinical Laboratory Statistics.
This course encompasses clinical diagnostic computations required in the clinical laboratory setting including clinical chemistry, urinalysis, hematology, immunohematology, microbiology, and molecular techniques. The course also includes fundamental concepts and techniques which underlie applications to the various clinical laboratory disciplines, including statistical concepts, calculations, quality control, instrument and method assessment/verification, and laboratory emphasis on sampling and applications to include pre-analytical, analytical, and post analytical phases of testing. Prerequisite: MATH 1411, CHEM 1306, and CHEM 1106 each with a grade of C or higher.
Department: Clinical Laboratory Science
2 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours
Prerequisite(s): (MATH 1411 w/C or better ) AND (CHEM 1106 w/C or better AND CHEM 1306 w/C or better)
CLSC 2310. Molecular Diagnostics.
This course will encompass diagnostic applications in the clinical laboratory. Areas covered will include genetics, molecular techniques, molecular pathology, principles and practices of quality control and quality assurance including pre- and post-analytical assurance and the application of safety to laboratory practice. Prerequisites: CHEM 1306, BIOL 1305, BIOL 3320, and MATH 1411, each with a grade of C or higher.

Department: Clinical Laboratory Science

3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

CLSC 2311. Hematology Laboratory.

Department: Clinical Laboratory Science

2 Credit Hours
4 Total Contact Hours
4 Lab Hours
0 Lecture Hours
0 Other Hours

CLSC 3110. Medical Terminology.
Medical Terminology (1-0) The course is designed for students to gain a working knowledge of medical terminology, symbols, abbreviations, roots prefixes and suffixes. The course may be taken by any interested students in associated majors or programs or health related fields.

Department: Clinical Laboratory Science

1 Credit Hour
1 Total Contact Hour
0 Lab Hours
1 Lecture Hour
0 Other Hours

CLSC 3150. Medical Terminology.
Medical Terminology (1-0) The course is designed for students to gain a working knowledge of medical terminology, symbols, abbreviations, roots, prefixes, and suffixes. The course may be taken by any interested students in associated majors or programs or health related fields.

Department: Clinical Laboratory Science

1 Credit Hour
1 Total Contact Hour
0 Lab Hours
1 Lecture Hour
0 Other Hours

CLSC 3153. Body Fluids Lab.
Body Fluids Lab (0-3) This laboratory provides the basic laboratory skills necessary for performing urinebody fluids analyses. Several fundamental laboratory methods are performed by the students using common body fluids principles. These laboratory assays provide the basis for most body fluids assays which will be demonstrated in the clinical hospital laboratory rotations. This course includes the principles and practices of quality control and pre-analytical, and post analytical components of microscopy and urinalysis and the application of safety to laboratory practice. Corequisite: CLSC 3252.

Department: Clinical Laboratory Science

1 Credit Hour
3 Total Contact Hours
3 Lab Hours
0 Lecture Hours
0 Other Hours

Corequisite(s): CLSC 3252
CLSC 3155. Clinical Chemistry I Lab.
Clinical Chemistry I Lab (0-3) This laboratory provides the basic skills necessary for performing clinical chemistry laboratory analyses. Several fundamental laboratory methods are performed by the students using common clinical chemistry principles. These laboratory assays provide the basis for most clinical chemistry analyses which will be demonstrated in the clinical hospital laboratory rotations. Corequisite: CLSC 3354. Prerequisites: CHEM 1305, CHEM 1105, CHEM 1306, CHEM 1106 and CHEM 2324 each with a grade of “C” or better and department approval. Restricted to major: CLIN.

Department: Clinical Laboratory Science
1 Credit Hour
3 Total Contact Hours
3 Lab Hours
0 Lecture Hours
0 Other Hours
Corequisite(s): CLSC 3354

CLSC 3159. Opport & Parasitic Infect Lab.
Opportunistic and Parasitic Infections Lab (0-3) This laboratory is designed to introduce the fundamental concepts and vocabulary of diagnostic mycology/parasitology. Laboratory exercises will be performed to learn basic methodology in the isolation and identification of fungi and most common parasites found in clinical specimens. Corequisite: CLSC 3258. Prerequisite: MICR 2440 with a grade of “C” or better.

Department: Clinical Laboratory Science
1 Credit Hour
3 Total Contact Hours
3 Lab Hours
0 Lecture Hours
0 Other Hours
Corequisite(s): CLSC 3258

CLSC 3161. Serology Lab.
Serology Lab (0-3) Serological techniques commonly used in the clinical laboratory will be encompassed with emphasis on direct application to the clinical laboratory. Serological testing and interpretation for disease such as: syphilis, mononucleosis, streptococcal infections and others. Corequisite: CLSC 3260 Prerequisite: CLSC 3351 with a grade of “C” or better.

Department: Clinical Laboratory Science
1 Credit Hour
3 Total Contact Hours
3 Lab Hours
0 Lecture Hours
0 Other Hours
Corequisite(s): CLSC 3260

CLSC 3163. Clinical Chemistry II Lab.
Clinical Chemistry Lab II (0-2) This laboratory provides the basic skills necessary for performing clinical chemistry laboratory analyses. Several fundamental laboratory methods are performed by the students using common clinical chemistry principles. These laboratory assays provide the basis for most clinical chemistry analyses which will be demonstrated in the clinical hospital laboratory rotations. Corequisite: CLSC 3362. Prerequisites: CHEM 1305-1105; CHEM 1306-1106 and CHEM 3324 each with a grade of “C” or better.

Department: Clinical Laboratory Science
1 Credit Hour
2 Total Contact Hours
2 Lab Hours
0 Lecture Hours
0 Other Hours
Corequisite(s): CLSC 3362

CLSC 3164. Clinical Chemistry II Lab.
Clinical Chemistry II Lab (0-3) A continuation of CLSC 3155 with an emphasis in therapeutic and abused-drug monitoring, pharmacokinetics, toxicology, hormones, and methods. Corequisite: CLSC 3262. Prerequisites: CLSC 3155, CLSC 3354 each with a grade of “C” or better and department approval. Restricted to major: CLIN.

Department: Clinical Laboratory Science
1 Credit Hour
3 Total Contact Hours
3 Lab Hours
0 Lecture Hours
0 Other Hours
Corequisite(s): CLSC 3262
CLSC 3165. Hematology II Lab.
This course is a continuation of CLSC 3257 (Hematology I Lab) with emphasis on peripheral blood and bone marrow differentiation, and microscopic identification of white blood cell disorders including, but not limited to, acute and chronic leukemias. Special hematology procedures will be discussed including stains, hemoglobin electrophoresis, and molecular diagnostics. Corequisite: CLSC 3264. Prerequisites: CLSC 3356 and CLSC 3257 each with a grade of C or higher.

Department: Clinical Laboratory Science
1 Credit Hour
3 Total Contact Hours
3 Lab Hours
0 Lecture Hours
0 Other Hours
Corequisite(s): CLSC 3264

Infectious Disease Lab: Pre-Analytical Operation This lab presents the essential and applied pre-analytical operations required in the field of clinical bacteriology. This course presents an overview of laboratory procedures used in pre-analytical bacteriology such as, but not limited to, specimen collection and processing, media selection, specimen inoculation and direct microscopic smears including evaluation and interpretation. Students will learn and understand the importance of communication with health professionals to ensure quality patient specimens for submission and recognize potential errors and resolve according to predetermined criteria. This course is presented as a co-requisite course with CLSC 3168 and CLSC 3366.

Department: Clinical Laboratory Science
1 Credit Hour
3 Total Contact Hours
3 Lab Hours
0 Lecture Hours
0 Other Hours
Major Restrictions:
Restricted to majors of CLIN, CLLD

Prerequisite(s): (CLSC 3357 w/C or better ) AND (CLSC 3351 w/C or better ) AND (MICR 2141 w/C or better AND MICR 2340 w/C or better ) AND (CHEM 1106 w/C or better ) AND (CHEM 2324 w/C or better)

Corequisite(s): CLSC 3168, CLSC 3366

Infectious Dis Lab: Analytical/Post-Analytical Operations This lab presents the essential and applied analytical and post-analytical operations required in the field of clinical bacteriology. This laboratory emphasizes practical case-study driven analysis of clinical bacteriology specimens presented in CLSC 3167. Students will learn how to accurately perform appropriate and timely testing in a cost-effective manner (analytical) and provide accurate and timely results to health professionals (post-analytical). This course is presented as a co-requisite course with CLSC 3167 and CLSC 3366.

Department: Clinical Laboratory Science
1 Credit Hour
3 Total Contact Hours
3 Lab Hours
0 Lecture Hours
0 Other Hours
Major Restrictions:
Restricted to majors of CLIN, CLLD

Prerequisite(s): (CLSC 3357 w/C or better ) AND (CLSC 3351 w/C or better ) AND (MICR 2141 w/C or better AND MICR 2340 w/C or better ) AND (CHEM 1106 w/C or better ) AND (CHEM 2324 w/C or better)

Corequisite(s): CLSC 3167, CLSC 3366

CLSC 3211. Hematology Laboratory.
Basic Hematology/Coagulation Laboratory (0-4) This course is designed to develop the skills and techniques necessary to recognize and identify normal and abnormal components of the hematopoietic system. Restricted to major: CLIN. Corequisite: CLSC 3314. Prerequisite: Admission to the Upper-division. Laboratory fee required.

Department: Clinical Laboratory Science
2 Credit Hours
4 Total Contact Hours
4 Lab Hours
0 Lecture Hours
0 Other Hours
Corequisite(s): CLSC 3314
CLSC 3212. Serology.
Serology (2-0) This course emphasizes the detection of disease by the use of serological techniques. Restricted to major: CLIN.
Department: Clinical Laboratory Science
2 Credit Hours
2 Total Contact Hours
0 Lab Hours
2 Lecture Hours
0 Other Hours

CLSC 3219. Hematology II.
Hematology II (2-0) This course emphasizes white cell formation and function. The etiology and treatment of white blood cell disorders is discussed. This course will also encompass hemostasis and laboratory determination of hemostatic disorders. Restricted to majors: CLIN. Prerequisites: CLSC 3314, CLSC 3211, and junior standing.
Department: Clinical Laboratory Science
2 Credit Hours
2 Total Contact Hours
0 Lab Hours
2 Lecture Hours
0 Other Hours

CLSC 3252. Body Fluids.
Body Fluids (2-0) This course will cover the chemical, serological, and hematological procedures performed on body fluids. Corequisite: CLSC 3153. Prerequisite: Department approval. Restricted to major: CLIN.
Department: Clinical Laboratory Science
2 Credit Hours
2 Total Contact Hours
0 Lab Hours
2 Lecture Hours
0 Other Hours

Major Restrictions:
Restricted to majors of CLIN
Corequisite(s): CLSC 3153

CLSC 3255. Clinical Chemistry I Lab.
Clinical Chemistry I Lab (0-4) This laboratory provides the basic laboratory skills necessary for performing clinical chemistry laboratory analyses. Several fundamental laboratory methods are performed by the students using common clinical chemistry principles. These laboratory assays provide the basis for most clinical chemistry assays which will be demonstrated in the clinical hospital laboratory rotations. Corequisite: CLSC 3454. Prerequisites: CHEM 1305-1105; CHEM 1306-1106; and CHEM 3324 each with a grade of "C" or better.
Department: Clinical Laboratory Science
2 Credit Hours
4 Total Contact Hours
4 Lab Hours
0 Lecture Hours
0 Other Hours
Corequisite(s): CLSC 3454

CLSC 3257. Hematology I Lab.
Hematology I Lab (0-6) This course is designed to develop the skills and techniques necessary to recognize and identify normal and abnormal components of the hematopoietic system. Restricted to major: CLIN. Corequisite: CLSC 3356. Prerequisite: Admission to the Upper-division.
Department: Clinical Laboratory Science
2 Credit Hours
6 Total Contact Hours
6 Lab Hours
0 Lecture Hours
0 Other Hours
Corequisite(s): CLSC 3356
Clinical Laboratory Science Courses

CLSC 3258. Opportunist & Parasitic Infect.
Opportunistic and Parasitic Infections (2-0) This course covers the pathogenesis and epidemiology of opportunistic microorganisms. The isolation, concentration, and identification of mycological and parasitological specimens is reviewed and discussed. This course includes the principles and practices of quality control and pre-analytical, and post analytical components of clinical microbiology and the application of safety to laboratory practice. Restricted to major: CLIN. Corequisite: CLSC 3159. Prerequisites: MICR 2440 with a grade of "C" or better and department approval.

Department: Clinical Laboratory Science
2 Credit Hours
2 Total Contact Hours
0 Lab Hours
2 Lecture Hours
0 Other Hours
Corequisite(s): CLSC 3159

CLSC 3260. Serology.
Serology (2-0) This course emphasizes the detection of disease by the use of serological techniques. Restricted to major: CLIN. Prerequisite: CLSC 3351 with a grade of "C" or better.

Department: Clinical Laboratory Science
2 Credit Hours
2 Total Contact Hours
0 Lab Hours
2 Lecture Hours
0 Other Hours

Major Restrictions:
Restricted to majors of CLIN

CLSC 3262. Clinical Chemistry II.
Clinical Chemistry II (2-0) A continuation of CLSC 3354 with an emphasis of therapeutic drugs of abuse, toxicology, pharmacokinetics, hormones, and methods. Corequisite: CLSC 3163. Prerequisites: CLIN 3155 and CLSC 3354 each with a grade of "C" or better and department approval.

Department: Clinical Laboratory Science
2 Credit Hours
2 Total Contact Hours
0 Lab Hours
2 Lecture Hours
0 Other Hours

Major Restrictions:
Restricted to majors of CLIN

Prerequisite(s): (CLSC 3155 w/C or better ) AND (CLSC 3354 w/C or better)
Corequisite(s): CLSC 3164

CLSC 3264. Hematology II.
Hematology II (2-0) This course emphasizes white cell formation and function. The etiology and treatment of white blood cell disorders is discussed. This course will also encompass hemostasis and laboratory determination of hemostatic disorders. Restricted to majors: CLIN. Prerequisites: CLSC 3356 and CLSC 3357 each with a grade of "C" or better.

Department: Clinical Laboratory Science
2 Credit Hours
2 Total Contact Hours
0 Lab Hours
2 Lecture Hours
0 Other Hours

CLSC 3267. Clinical Microbiology II Lab.
Clinical Microbiology II Lab (0-2) This laboratory course develops the basic skills and techniques necessary in the identification of a variety of human pathogens found in the clinical laboratory. Restricted to major: CLIN Corequisite: CLSC 3466. Prerequisite: Admission to the upper-division.

Department: Clinical Laboratory Science
2 Credit Hours
2 Total Contact Hours
0 Lab Hours
2 Lecture Hours
0 Other Hours
Corequisite(s): CLSC 3466
CLSC 3268. **Infectious Diseases Lab.**
Infectious Diseases Lab (0-6) This laboratory course develops the basic skills and techniques necessary for the isolation, identification, and antimicrobial susceptibility for a variety of pathogens causing diseases. This course includes the principles and practices of quality control and pre-analytical, analytical, and post-analytical components of clinical microbiology and the application of safety to laboratory practice. Corequisite: CLSC 3366. Prerequisites: MICR 2440 with a grade of "C" or better and department approval. Restricted to major: CLIN.

**Department:** Clinical Laboratory Science

**2 Credit Hours**

**6 Total Contact Hours**

6 Lab Hours
0 Lecture Hours
0 Other Hours

Corequisite(s): CLSC 3366

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CLSC 3269. **Immunohematology Lab.**
Immunohematology Lab (0-6) This laboratory course is designed to develop and refine skills in performing antigen and antibody identification techniques, compatibility testing and blood component preparation. Laboratory procedures for processing and selecting blood products, identification of blood group antigens and antibodies, blood storage procedures, quality control and pre-analytical, analytical, and post-analytical components of immunohematology and the application of safety to laboratory practice. Restricted to major: CLIN. Corequisite: CLSC 3368.

**Department:** Clinical Laboratory Science

**2 Credit Hours**

**6 Total Contact Hours**

6 Lab Hours
0 Lecture Hours
0 Other Hours

Corequisite(s): CLSC 3368

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CLSC 3301. **Clinical Immunology.**
Clinical Immunology (3-0) This course covers basic immunology and its clinical applications. Interactions between various lymphoid cells and their secretions are examined. The role of the immune system in tumor growth, transplantation and rejection, and autoimmune diseases is examined. Various test methods and procedures used in the clinical lab are demonstrated and discussed. Prerequisite: MICR 2440 and admission to the upper-division.

**Department:** Clinical Laboratory Science

**3 Credit Hours**

**3 Total Contact Hours**

0 Lab Hours
3 Lecture Hours
0 Other Hours

Classification Restrictions:
Restricted to class of JR,SR

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CLSC 3303. **Hematology.**
Hematology and Coagulation (3-0) This course is designed to provide a basic understanding of the fundamental mechanisms involved in blood cell formation and function and the etiology and treatment of blood disorders. Prerequisite: BIOL 2313 and admission to the upper-division. Corequisite: CLSC 3211.

**Department:** Clinical Laboratory Science

**3 Credit Hours**

**3 Total Contact Hours**

0 Lab Hours
3 Lecture Hours
0 Other Hours

Classification Restrictions:
Restricted to class of JR,SR

Corequisite(s): CLSC 3211

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CLSC 3306. **Clinical Microbiology I.**
Clinical Microbiology I (2-2) This course will cover the concentration, isolation and identification of infectious mycological and parasitological specimens. Restricted to major: CLIN. Prerequisite: MICR 2440 and admission to the Upper-division. Laboratory fee required.

**Department:** Clinical Laboratory Science

**3 Credit Hours**

**4 Total Contact Hours**

2 Lab Hours
2 Lecture Hours
0 Other Hours
CLSC 3308. Body Fluids.
Body Fluids (2-2) This course will cover the chemical, serological and coagulation procedures performed on body fluids. Restricted to major: CLIN. Prerequisite: Admission to the Upper-division. Laboratory fee required.
Department: Clinical Laboratory Science
3 Credit Hours
4 Total Contact Hours
2 Lab Hours
2 Lecture Hours
0 Other Hours

CLSC 3311. Clinical Immunology.
Clinical Immunology (3-0) This course covers basic immunology and its clinical applications. Interactions between various lymphoid cells and their secretions are examined. The role of the immune system in tumor growth, transplantation and rejection, and autoimmune diseases is examined. Various test methods and procedures used in the clinical lab are demonstrated and discussed. Restricted to major: CLIN. Prerequisite: MICR 2440.
Department: Clinical Laboratory Science
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

CLSC 3314. Hematology I.
Hematology I (3-0) This course is designed to provide a basic understanding of the fundamental mechanisms involved in blood cell formation and function and the etiology and treatment of blood disorders. Restricted to major: CLIN. Corequisite: CLSC 3211. Prerequisite: BIOL 2313.
Department: Clinical Laboratory Science
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours
Corequisite(s): CLSC 3211

CLSC 3322. Immunohematology.
Immunohematology (3-0) The immuno-chemical reactivity of blood antigens and antibodies, blood grouping, compatibility testing, and hemolytic disease of the newborn are presented. Restricted to major: CLIN. Corequisite: CLSC 4101. Prerequisites: CLSC 3301 or CLSC 3311 and CLSC 3303 or CLSC 3314.
Department: Clinical Laboratory Science
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours
Corequisite(s): CLSC 4101

Concepts in Immunodiagnostics (3-0) This course covers basic clinical immunology and applications in laboratory medicine. Interactions among immune cells and their secretions are examined. The role of the immune system in tumor growth, transplantation and rejection, and autoimmune diseases is covered. Various methods utilized in the clinical laboratory are demonstrated and discussed. This course includes the principles and practices of quality control and pre-analytical, analytical, and post analytical components of clinical immunology. Restricted to major: CLIN. Prerequisite: MICR 2440 with a grade of "C" or better.
Department: Clinical Laboratory Science
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours
Prerequisite(s): (MICR 2440 w/C or better ) OR (MICR 2141 w/C or better AND MICR 2340 w/C or better)
CLSC 3352. Body Fluids.
Body Fluids (3-0) This course will cover the chemical, serological and coagulation procedures performed on body fluids. Restricted to major: CLIN.
Prerequisite: Admission to the Upper-division.
Department: Clinical Laboratory Science
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

CLSC 3354. Clinical Chemistry I.
Clinical Chemistry I (3-0) This course includes the principles and practices of quality control and pre-analytical, analytical, and post analytical components of clinical chemistry. Basic concepts of laboratory mathematics, colorimetry, spectrophotometry, fluorometry, electrophoreses, chromatography are discussed. Chemical laboratory fundamentals and procedures are presented and related to normal and abnormal human physiology and biochemistry. Restricted to major: CLIN. Corequisite: CLSC 3155. Prerequisites: CHEM 1305, CHEM 1105, CHEM 1306, CHEM 1106, and CHEM 2324 each with a grade of "C" or better and department approval.
Department: Clinical Laboratory Science
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

Major Restrictions:
Restricted to majors of CLIN

Prerequisite(s): (CHEM 1305 w/C or better ) AND (CHEM 1105 w/C or better ) AND (CHEM 1306 w/C or better ) AND (CHEM 1106 w/C or better ) AND (CHEM 3324 w/C or better ) OR (CHEM 2324 w/C or better)

Corequisite(s): CLSC 3155

CLSC 3356. Hematology I.
Hematology I (3-0) This course is a comprehensive study of the process of blood formation. It includes morphological and biochemical relationships of red blood cell formation in healthy vs. disease states, as well as the performance and application of current methods in hematomic analysis and technology. This course includes the principles and practices of quality control and pre-analytical, analytical, and post analytical components of hematology. Restricted to majors: CLIN. Corequisite: CLSC 3257. Prerequisite: BIOL 2313 with a grade of "C" or better.
Department: Clinical Laboratory Science
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

Major Restrictions:
Restricted to majors of CLIN

Prerequisite(s): (BIOL 2313 w/C or better)

Corequisite(s): CLSC 3257

CLSC 3357. Opportunist & Parasitic Infect.
This course covers the pathogenesis and the epidemiology of opportunistic microorganisms. The isolation, concentration, and identification of mycological and parasitological specimens is reviewed and discussed. This course includes the principles and practices of quality control, the pre-analytical and post-analytical components of clinical microbiology, and the application of safety to laboratory practice. Prerequisite: MICR 2440 (MICR 2340 and MICR 2141) with a grade of C or better AND departmental approval. Restricted to major: CLIN.
Department: Clinical Laboratory Science
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

Major Restrictions:
Restricted to majors of CLLD

Prerequisite(s): (MICR 2440 w/C or better ) OR (MICR 2141 w/C or better AND MICR 2340 w/C or better)
CLSC 3358. Clinical Microbiology I.
Clinical Microbiology I (2-2) This course will cover the concentration, isolation and identification of infectious mycological and parasitological specimens. Restricted to major: CLIN Prerequisite: MICR 2440 with a grade of "C" or better and admission to the Upper-division.
Department: Clinical Laboratory Science
3 Credit Hours
4 Total Contact Hours
2 Lab Hours
2 Lecture Hours
0 Other Hours

CLSC 3362. Clinical Chemistry.
Clinical Chemistry (3-0) A continuation of CLSC 3413 with an emphasis on therapeutic and abused drug monitoring, pharmacokinetics, toxicology, hormones and methods. Restricted to major: CLIN.
Department: Clinical Laboratory Science
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

CLSC 3364. Hematology II.
This course emphasizes white-cell formation and function. The etiology and treatment of white blood cell disorders are discussed. It also encompasses hemostasis and laboratory determination of hemostatic disorders, including the study of the interaction of blood vessels and platelets with both the coagulation and fibrinolytic systems. Prerequisites: CLSC 3356 and CLSC 3257 with a grade of C or better. Department approval also required. Restricted to major: CLIN.
Department: Clinical Laboratory Science
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

Major Restrictions:
Restricted to majors of CLIN

Prerequisite(s): (CLSC 3356 w/C or better ) AND (CLSC 3257 w/C or better)

CLSC 3365. Clinical Chemistry II.
Clinical Chemistry II This class is a continuation of Clinical Chemistry I (CLSC 3354) with an emphasis on therapeutic drugs of abuse, toxicology, pharmacokinetics, endocrinology, and the application of clinical methods for assessing physiological markers of disease in multiple organ systems. Pathophysiology of body systems including aspects of pre- analytical, analytical and post analytical analysis.
Department: Clinical Laboratory Science
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

Major Restrictions:
Restricted to majors of CLIN

Prerequisite(s): (CLSC 3155 w/C or better ) AND (CLSC 3354 w/C or better)

Corequisite(s): CLSC 3164
CLSC 3366. Infectious Diseases.
Infectious Diseases (3-0) This course covers the pathogenesis and the epidemiology of pathogenic microorganisms. The diagnosis of infectious diseases by various cultivation isolation and identification techniques is discussed. This course includes the principles and practices of quality control and pre-analytical, analytical, and post analytical components of clinical microbiology and the application of safety to laboratory practice. Restricted to major: CLIN. Corequisite: CLSC 3267. Prerequisites: MICR 2440 with a grade of "C" or better and department approval.
Department: Clinical Laboratory Science

3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

Major Restrictions:
Restricted to majors of CLIN

Prerequisite(s): (MICR 2440 w/C or better ) OR (MICR 2141 w/C or better AND MICR 2340 w/C or better)

Corequisite(s): CLSC 3267

CLSC 3368. Immunohematology.
Immunohematology (3-0) This immuno-chemical reactivity of blood antigens and antibodies, blood grouping, compatibility testing, and hemolytic disease of the newborn are presented. Restricted to major: CLIN. Corequisite: CLSC 3269. Prerequisites: CLSC 3351 and CLSC 3356 each with a grade of "C" or better.
Department: Clinical Laboratory Science

3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

Major Restrictions:
Restricted to majors of CLIN

Prerequisite(s): (CLSC 3351 w/C or better AND CLSC 3356 w/C or better)

Corequisite(s): CLSC 3269

CLSC 3401. Clinical Chemistry.
Clinical Chemistry (4-0) Basic concepts of quality control, laboratory mathematics, colorimetry and spectrophotometry, fluorometry and radioimmunoassay are discussed. Chemical laboratory fundamentals and procedures are presented and related to normal and abnormal human physiology and biochemistry. Co-requisite: CLSC 3301. Prerequisites: Admission to the upper-division, CHEM 3325 and CHEM 3125.
Department: Clinical Laboratory Science

4 Credit Hours
4 Total Contact Hours
0 Lab Hours
4 Lecture Hours
0 Other Hours

Classification Restrictions:
Restricted to class of JR,SR

Corequisite(s): CLSC 3301

CLSC 3413. Clinical Chemistry I.
Clinical Chemistry I (4-0) Basic concepts of quality control, laboratory mathematics, colorimetry and spectrophotometry, fluorometry and radioimmunoassay are discussed. Chemical laboratory fundamentals and procedures are presented and related to normal and abnormal human physiology and biochemistry. Restricted to major: CLIN. Corequisite: CLSC 3311. Prerequisites: CHEM 3325 and CHEM 3125.
Department: Clinical Laboratory Science

4 Credit Hours
4 Total Contact Hours
0 Lab Hours
4 Lecture Hours
0 Other Hours

Corequisite(s): CLSC 3311
CLSC 3418. Clinical Chemistry II.
Clinical Chemistry II (4-0) A continuation of CLSC 3413 with an emphasis on therapeutic and abused drug monitoring, pharmokinetics, toxicology, hormones and methods. Restricted to major: CLIN. Prerequisites: CLSC 3401 or CLSC 3413, and department approval.
Department: Clinical Laboratory Science
4 Credit Hours
4 Total Contact Hours
0 Lab Hours
4 Lecture Hours
0 Other Hours

CLSC 3454. Clinical Chemistry.
Clinical Chemistry (4-0) Basic concepts of quality control, laboratory mathematics, colorimetry and spectrophotometry, fluorometry and radioimmunoassay are discussed. Chemical laboratory fundamentals and procedures are presented and related to normal and abnormal human physiology and biochemistry. Restricted to major: CLIN Corequisite: CLSC 3255. Prerequisites: CHEM 3324 with a grade of "C" or better.
Department: Clinical Laboratory Science
4 Credit Hours
4 Total Contact Hours
0 Lab Hours
4 Lecture Hours
0 Other Hours
Corequisite(s): CLSC 3255

CLSC 3466. Clinical Microbiology II.
Clinical Microbiology II (4-0) This course covers the pathogenesis and epidemiology of pathogenic organisms found in the hospital laboratory: bacteria, fungi, parasites, and viruses. The diagnosis of infectious diseases by various cultivation isolation and identification techniques are discussed. Restricted to major: CLIN: Prerequisites: CLSC 3358 with a grade of "C" or better, department approval, and admission to the Upper-division.
Department: Clinical Laboratory Science
4 Credit Hours
4 Total Contact Hours
0 Lab Hours
4 Lecture Hours
0 Other Hours

CLSC 4100. Ethics.
Ethics (1-0) A study of legal and ethical principles in health care and laboratory medicine.
Department: Clinical Laboratory Science
1 Credit Hour
1 Total Contact Hour
0 Lab Hours
1 Lecture Hour
0 Other Hours
Classification Restrictions:
Restricted to class of JR,SR

CLSC 4101. Immunohematology Lab.
Immunohematology Lab (0-2) This laboratory course is designed to develop and refine skills in performing antigen and antibody identification techniques, compatibility testing and blood component preparation. Restricted to major: CLIN. Corequisite: CLSC 3322. Prerequisite: Admission to the Upper-division. Laboratory fee required.
Department: Clinical Laboratory Science
1 Credit Hour
2 Total Contact Hours
2 Lab Hours
0 Lecture Hours
0 Other Hours
Corequisite(s): CLSC 3322
CLSC 4106. Clinical Microbiology Lab.
Clinical Microbiology Lab (0-2) This laboratory course develops the basic skills and techniques necessary in the identification of a variety of human pathogens found in the clinical laboratory. Restricted to major: CLIN. Corequisite: CLSC 4406. Prerequisite: Admission to the Upper-division. Laboratory fee required.
Department: Clinical Laboratory Science
1 Credit Hour
2 Total Contact Hours
2 Lab Hours
0 Lecture Hours
0 Other Hours
Corequisite(s): CLSC 4406

CLSC 4111. Molecular Diagnosis Laboratory.
Molecular Diagnosis Laboratory This laboratory provides the basic skills necessary for performing and applying molecular techniques and used in molecular pathology as described in CLSC 4210. The course will focus on the specific applications of molecular techniques within a variety of disciplines such as infectious disease, hematology, immunology, hemostasis, forensic science, and transplantation immunology.
Department: Clinical Laboratory Science
1 Credit Hour
3 Total Contact Hours
3 Lab Hours
0 Lecture Hours
0 Other Hours
Major Restrictions:
Restricted to majors of CLIN
Prerequisite(s): (CLSC 3364 w/C or better) AND (CLSC 3365 w/C or better) AND (CLSC 3366 w/C or better) AND (CLSC 3368 w/C or better) AND (BIOL 3320 w/C or better) AND (MICR 2340 w/C or better) AND (MICR 2141 w/C or better)
Corequisite(s): CLSC 4210

CLSC 4114. Clinical/Pathology Seminar.
Clinical Pathology Seminar (1-0) Focuses on pathological findings and the role of the clinical laboratory in disease prevention, detection, and treatment. Co-requisite: CLSC 4706. Prerequisite: Admission to the upper-division.
Department: Clinical Laboratory Science
1 Credit Hour
1 Total Contact Hour
0 Lab Hours
1 Lecture Hour
0 Other Hours
Classification Restrictions:
Restricted to class of JR,SR
Corequisite(s): CLSC 4706

CLSC 4145. Clinical Pathology Seminar.
Clinical Pathology Seminar (1-0) Focuses on pathological findings and the role of the clinical laboratory in disease prevention, detection, and treatment. Restricted to major: CLIN. Corequisite: CLSC 4742.
Department: Clinical Laboratory Science
1 Credit Hour
1 Total Contact Hour
0 Lab Hours
1 Lecture Hour
0 Other Hours
Corequisite(s): CLSC 4742
CLSC 4175. Clinical Lab Science Seminar I.
Clinical Laboratory Science Seminar I (1-0) Focuses on pathological findings and the role of the clinical laboratory in disease prevention, detection, and treatment. Restricted to major: CLIN Corerequisite: CLSC 4671.
Department: Clinical Laboratory Science
1 Credit Hour
1 Total Contact Hour
0 Lab Hours
1 Lecture Hour
0 Other Hours
Corequisite(s): CLSC 4872

CLSC 4179. Clinical Lab Sci. Seminar II.
Clinical Laboratory Science Seminar II (1-0) Focuses in the role of the clinical laboratory in disease prevention, detection and treatment, as well as other areas related to laboratory medicine.
Department: Clinical Laboratory Science
1 Credit Hour
1 Total Contact Hour
0 Lab Hours
1 Lecture Hour
0 Other Hours

CLSC 4180. Seminar.
Seminar (1-0) The student will be given the opportunity to develop a broader understanding of the clinical laboratory scientist's role as a health professional in a variety of learning experiences, including seminars, lectures, and panel discussions. Principles and application of professionalism will be addressed as well as ongoing professional career development. Included in this course are review and practice examination. Restricted to major: CLIN. Prerequisite: Department approval.
Department: Clinical Laboratory Science
1 Credit Hour
1 Total Contact Hour
0 Lab Hours
1 Lecture Hour
0 Other Hours

Major Restrictions:
Restricted to majors of CLIN

CLSC 4190. Special Problems.
Special Problems (0-0-1) Independent study in clinical laboratory research. Limit six credits. Prerequisite: Department approval.
Department: Clinical Laboratory Science
1 Credit Hour
1 Total Contact Hour
0 Lab Hours
1 Lecture Hour
0 Other Hours

Classification Restrictions:
Restricted to class of JR,SR

CLSC 4210. Molecular Diagnostics.
Molecular Diagnostics This course will encompass diagnostic applications in the clinical laboratory. Areas covered will include genetics, molecular techniques, molecular pathology, principles and practices of quality control and quality assurance including pre-and post- analytical assurance and the application of safety to laboratory practice. The course will focus on applications of molecular diagnostics within a variety of disciplines such as infectious disease, hematology, immunology, hemostasis, forensic science, and transplantation immunology.
Department: Clinical Laboratory Science
2 Credit Hours
2 Total Contact Hours
0 Lab Hours
2 Lecture Hours
0 Other Hours

Major Restrictions:
Restricted to majors of CLIN

Prerequisite(s): (CLSC 3364 w/C or better ) AND (CLSC 3365 w/C or better ) AND (CLSC 3366 w/C or better ) AND (CLSC 3368 w/C or better ) AND (BIOL 3320 w/C or better ) AND (MICR 2340 w/C or better ) AND (MICR 2141 w/C or better)
CLSC 4244. Clinical Investigation.
Clinical Investigation (2-0) Correlation of disease states and changes in laboratory values - a case study approach. Restricted to major: CLIN. Prerequisite: Department approval.
Department: Clinical Laboratory Science
2 Credit Hours
2 Total Contact Hours
0 Lab Hours
2 Lecture Hours
0 Other Hours

CLSC 4248. Professional Development.
Professional Development (2-0) Students will present current case studies and develop a research proposal. Restricted to major: CLIN. Prerequisite: Department approval.
Department: Clinical Laboratory Science
2 Credit Hours
2 Total Contact Hours
0 Lab Hours
2 Lecture Hours
0 Other Hours

CLSC 4273. Clinical Education.
Clinical Education (2-0) This course will cover basic education techniques and terminology to train/educate users and providers of laboratory services, including the development of continuing education programs, curriculum design, program and student assessments, and test development. Restricted to major: CLIN. Prerequisite: Department approval.
Department: Clinical Laboratory Science
2 Credit Hours
2 Total Contact Hours
0 Lab Hours
2 Lecture Hours
0 Other Hours
Major Restrictions:
Restricted to majors of CLIN

CLSC 4274. Clinical Investigation.
Clinical Investigation (2-0) This course will cover research in medical/clinical settings with a focus on research planning, design, data collection and dissemination, and evaluation of published studies. Students will design and perform research to include proposal writing. Correlation of disease states and changes in laboratory values will also be included as case studies. Restricted to major: CLIN. Prerequisite: Department approval.
Department: Clinical Laboratory Science
2 Credit Hours
2 Total Contact Hours
0 Lab Hours
2 Lecture Hours
0 Other Hours

CLSC 4275. Clinical Lab Mgmt/Supervision.
Clinical Laboratory Management and Supervision (2-0) Introductory course in the principles and techniques used in the supervision and management of the clinical laboratory in the health professions. The course includes human resource management, management and motivational theories, communication skills, interviewing, performance appraisals, accreditation agencies, federal and state regulations, budget and strategic planning, evaluation instruments, and the implementation of a laboratory quality improvement program. Financial management is covered including profit and loss, cost/benefit reimbursement requirements, and materials/inventory management. Restricted to major: CLIN. Prerequisite: Department approval.
Department: Clinical Laboratory Science
2 Credit Hours
2 Total Contact Hours
0 Lab Hours
2 Lecture Hours
0 Other Hours
Major Restrictions:
Restricted to majors of CLIN
CLSC 4278. Professional Development.
Professional Development (2-0) Students will present current case studies and develop a research proposal. Restricted to major: CLIN. Prerequisite: Department approval.
Department: Clinical Laboratory Science
2 Credit Hours
2 Total Contact Hours
0 Lab Hours
2 Lecture Hours
0 Other Hours

CLSC 4290. Special Problems.
Special Problems (0-0-2) Independent study in clinical laboratory research. Limit six credits. Prerequisite: Department approval.
Department: Clinical Laboratory Science
2 Credit Hours
2 Total Contact Hours
0 Lab Hours
0 Lecture Hours
2 Other Hours

CLSC 4300. Clinical Lab Mgmt/Supervision.
Clinical Laboratory Management and Supervision (3-0) This course will cover scheduling, workload recording, cost accounting, and instrument and method evaluation. Prerequisite: Admission to the upper-division.
Department: Clinical Laboratory Science
3 Credit Hours
0 Total Contact Hours
0 Lab Hours
0 Lecture Hours
0 Other Hours

Classification Restrictions:
Restricted to class of JR,SR

CLSC 4301. Clinical Lab. Skills I.
Clinical Laboratory Skills I (0-9) This course is designed to develop skills in clinical laboratory procedures. Experiences in serological, hematological and microbiological applications are included. Restricted to majors: CLIN. Prerequisite: Admission to the upper division, CLSC 3211, and department approval. Laboratory fee required.
Department: Clinical Laboratory Science
3 Credit Hours
9 Total Contact Hours
9 Lab Hours
0 Lecture Hours
0 Other Hours

CLSC 4302. Clinical Laboratory Skills II.
Clinical Laboratory Skills II (0-9) This course is designed to develop and refine skills in performing clinical laboratory procedures. A clinical practicum emphasized clinical chemistry, immunohematological and routine analysis applications in the clinical laboratory. Restricted to major: CLIN. Prerequisite: Admission to the upper-division and department approval. Laboratory fee required.
Department: Clinical Laboratory Science
3 Credit Hours
9 Total Contact Hours
9 Lab Hours
0 Lecture Hours
0 Other Hours

CLSC 4304. Clinical Education & Research.
Clinical Education and Research (3-0) Course will cover basic teaching techniques, development of continuing education programs, and proposal writing. Prerequisite: Admission to the upper-division and department approval.
Department: Clinical Laboratory Science
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

Classification Restrictions:
Restricted to class of JR,SR
CLSC 4306. Topics in Laboratory Medicine.
Topics in Laboratory Medicine (3-0) Current trends and changes in the clinical laboratory will be investigated. Prerequisite: Admission to the upper-division.

Department: Clinical Laboratory Science
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

Classification Restrictions:
Restricted to class of JR,SR

CLSC 4310. Immunohematology.
Immunohematology (3-0) The immuno-chemical reactivity of blood antigens and antibodies, blood grouping, compatibility testing, and hemolytic disease of the newborn are presented. HLA testing and component therapy are explored. Co-requisite: CLSC 4101. Prerequisites: Admission to the upper-division, CLSC 3301, and CLSC 3303.

Department: Clinical Laboratory Science
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

Classification Restrictions:
Restricted to class of JR,SR

Corequisite(s): CLSC 4101

CLSC 4314. Clinical Pathology Seminar I.
Clinical Pathology Seminar I (3-0) Correlation of disease states and changes in laboratory values --a case study approach. Prerequisite: Admission to the upper-division and department approval.

Department: Clinical Laboratory Science
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

Classification Restrictions:
Restricted to class of JR,SR

CLSC 4315. Clinical Pathology Seminar II.
Clinical Pathology Seminar II (3-0) Students will present current case studies and develop a research proposal. Prerequisite: Admission to the upper-division and department approval.

Department: Clinical Laboratory Science
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

Classification Restrictions:
Restricted to class of JR,SR

CLSC 4343. Clinical Mgmt./Supervision.
Clinical Laboratory Management and Supervision (3-0) This course will cover scheduling, workload recording, cost accounting, and instrument and method evaluation. Restricted to major: CLIN.

Department: Clinical Laboratory Science
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours
CLSC 4347. Clinical Education/Research.
Clinical Education and Research (3-0) Course will cover basic teaching techniques, development of continuing education programs, and proposal writing. Restricted to major: CLIN. Prerequisite: Department approval.

**Department:** Clinical Laboratory Science

3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

CLSC 4371. Preceptorship I.
Preceptorship I (0-0-32) Instruction and practice of techniques and their applications in the clinical laboratory setting in hematology, immunohematology, clinical microbiology, coagulation, body fluid analysis, and serology. This course includes the principles and practices of quality control and pre-analytical, analytical, and post analytical components of laboratory science and the application of safety to laboratory practice. Corequisites: CLSC 4372.
Prerequisite: CLSC 3368 with a grade of "C" or better and department approval. Restricted to major: CLIN.

**Department:** Clinical Laboratory Science

3 Credit Hours
32 Total Contact Hours
0 Lab Hours
0 Lecture Hours
32 Other Hours

Corequisite(s): CLSC 4372

CLSC 4372. Preceptorship II.
Preceptorship II (0-0-32) Instruction and practice of techniques and their applications in the clinical laboratory setting in hematology, immunohematology, clinical chemistry, clinical microbiology, coagulation, body fluid analysis, and serology. This course includes the principles and practices of quality control and pre-analytical, analytical, and post analytical components of laboratory science and the application of safety to laboratory practice. Corequisite: CLSC 4371. Prerequisite: CLSC 3368 with a grade of "C" or better and department approval. Restricted to major: CLIN.

**Department:** Clinical Laboratory Science

3 Credit Hours
32 Total Contact Hours
0 Lab Hours
0 Lecture Hours
32 Other Hours

Corequisite(s): CLSC 4371

CLSC 4373. Clinical Lab/Mgmt/Supervision.
Clinical Laboratory Management and Supervision (3-0) This course will cover scheduling, workload recording cost accounting, and instrument and method evaluation. Restricted to major: CLIN.

**Department:** Clinical Laboratory Science

3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

CLSC 4376. Preceptorship III.
Preceptorship III (0-0-32) A continuation of CLSC 4371 and 4372. The student will also be given the opportunity to demonstrate: 1) the ability to apply knowledge, attitudes, and skills to the clinical laboratory practices and procedures; 2) the ability to integrate previous knowledge and skills with more sophisticated instrumental and advanced methodology; 3) an attitude of cooperation and concern in interpersonal relationships and interdisciplinary communication and team building with patients and health care workers; and 4) an appreciation of the ethical foundations of clinical laboratory sciences. This course includes the principles and practices of quality control and pre-analytical, analytical, and post analytical components of laboratory science and the application of safety to laboratory practice. The (0-0-32) represents the contact hours per week. Restricted to major: CLIN. Corequisite: CLSC 4373. Prerequisites: CLSC 4371 and 4372 with a grade of "C" or better and department approval.

**Department:** Clinical Laboratory Science

3 Credit Hours
32 Total Contact Hours
0 Lab Hours
0 Lecture Hours
32 Other Hours

Corequisite(s): CLSC 4373
CLSC 4377. Clinical Education/Research.
Clinical Education and Research (3-0) Course will cover basic teaching techniques, development of continuing education programs, and proposal writing. Restricted to major: CLIN. Prerequisite: Department approval.
Department: Clinical Laboratory Science
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
3 Lecture Hours
0 Other Hours

CLSC 4378. Preceptorship IV.
Preceptorship IV (0-0-32) A continuation of CLSC 4371 and 4372. The student will also be given the opportunity to demonstrate: 1) the ability to apply knowledge, attitudes, and skills to the clinical laboratory practices and procedures; 2) the ability to integrate previous knowledge and skills with more sophisticated instrumentation and advanced methodology; 3) an attitude of cooperation and concern in interpersonal relationships and interdisciplinary communication and team building with patients and health care workers; and 4) an appreciation of the ethical foundations of clinical laboratory sciences. This course includes the principles and practices of quality control and pre-analytical, analytical, and post analytical components of laboratory science and the application of safety to laboratory practice. The (0-0-32) represents the contact hours per week. Restricted to major: CLIN. Corequisite:
CLSC 4376. Prerequisites: CLSC 4371 and CLSC 4372 each with a grade of "C" or better and department approval.
Department: Clinical Laboratory Science
3 Credit Hours
32 Total Contact Hours
0 Lab Hours
0 Lecture Hours
32 Other Hours
Corequisite(s): CLSC 4376

CLSC 4390. Special Problems.
Special Problems (0-0-3) Independent study in clinical laboratory research. Limit six credits. Prerequisite: Department approval.
Department: Clinical Laboratory Science
3 Credit Hours
3 Total Contact Hours
0 Lab Hours
0 Lecture Hours
3 Other Hours

Major Restrictions:
Restricted to majors of CLIN

CLSC 4406. Clinical Microbiology II.
Clinical Microbiology II (4-0) This course covers the pathogenesis and epidemiology of pathogenic organisms found in the hospital laboratory: bacteria, fungi, parasites, and viruses. The diagnosis of infectious diseases by various cultivation isolation and identification techniques are discussed. Restricted to major: CLIN. Corequisite: CLSC 4106. Prerequisite: CLSC 3306, department approval, and admission to the Upper-division. Course fee required.
Department: Clinical Laboratory Science
4 Credit Hours
4 Total Contact Hours
0 Lab Hours
4 Lecture Hours
0 Other Hours
Corequisite(s): CLSC 4106

CLSC 4408. Advanced Clinical Chemistry.
Advanced Clinical Chemistry (4-0) A continuation of CLSC 3401 with an emphasis on therapeutic and abused drug monitoring, pharmokinetics, toxicology, hormones and methods. Prerequisites: Admission to the upper-division, CLSC 3401, and department approval.
Department: Clinical Laboratory Science
4 Credit Hours
4 Total Contact Hours
0 Lab Hours
4 Lecture Hours
0 Other Hours
Classification Restrictions:
Restricted to class of JR,SR
CLSC 4471. Preceptorship I.
Instruction and practice of techniques and their applications in the clinical laboratory setting (practicum) in hematology, immunohematology, clinical chemistry, clinical microbiology, coagulation, body fluid analysis, and serology. This course includes the principles and practices of quality control and pre-analytical, analytical, and post-analytical components of laboratory science and the application of safety to laboratory practice. Corequisite: CLSC 4472.
**Department:** Clinical Laboratory Science
4 Credit Hours
32 Total Contact Hours
0 Lab Hours
0 Lecture Hours
32 Other Hours
**Corequisite(s):** CLSC 4472

CLSC 4472. Preceptorship II.
Instruction and practice of techniques and their applications in the clinical laboratory setting (practicum) in hematology, immunohematology, clinical chemistry, clinical microbiology, coagulation, body-fluid analysis, and serology. This course includes the principles and practices of quality control and pre-analytical, analytical, and post-analytical components of laboratory science and the application of safety to laboratory practice. Corequisite: CLSC 4471. Prerequisite: CLSC 3368 with a grade of C or better.
**Department:** Clinical Laboratory Science
4 Credit Hours
32 Total Contact Hours
0 Lab Hours
0 Lecture Hours
32 Other Hours
**Corequisite(s):** CLSC 4471

CLSC 4476. Preceptorship III.
A continuation of CLSC 4471 and 4472. The student will also be given the opportunity to demonstrate (1) the ability to apply knowledge, attitudes, and skills to the clinical laboratory practices and procedures; (2) the ability to integrate previous knowledge and skills with more sophisticated instrumentation and advanced methodology; (3) an attitude of cooperation and concern in interpersonal relationships and interdisciplinary communication and team building with patients and healthcare workers; and (4) an appreciation of the ethical foundations of clinical laboratory sciences. This course includes the principles and practices of quality control and pre-analytical, analytical, and post-analytical components of laboratory science and the application of safety to laboratory practice. Corequisite: CLSC 4478. Prerequisites: CLSC 4471 and CLSC 4472, each with a grade of C or higher.
**Department:** Clinical Laboratory Science
4 Credit Hours
32 Total Contact Hours
0 Lab Hours
0 Lecture Hours
32 Other Hours
**Major Restrictions:**
Restricted to majors of CLIN

**Classification Restrictions:**
Restricted to class of SR

**Prerequisite(s):** (CLSC 4471 w/C or better) AND (CLSC 4472 w/C or better)

**Corequisite(s):** CLSC 4478
CLSC 4478. Preceptorship IV.
A continuation of CLSC 4471 and 4472. The student will also be given the opportunity to demonstrate (1) the ability to apply knowledge, attitudes, and skills to the clinical laboratory practices and procedures; (2) the ability to integrate previous knowledge and skills with more sophisticated instrumentation and advanced methodology; (3) an attitude of cooperation and concern in interpersonal relationships and interdisciplinary communication and team building with patients and healthcare workers; and (4) an appreciation of the ethical foundations of clinical laboratory sciences. This course includes the principles and practices of quality control and pre-analytical, analytical, and post-analytical components of laboratory science and the application of safety to laboratory practice. Corequisite: CLSC 4478. Prerequisites: CLSC 4471 and CLSC 4472, each with a grade of C or higher.

Department: Clinical Laboratory Science

4 Credit Hours
32 Total Contact Hours
0 Lab Hours
0 Lecture Hours
32 Other Hours

Major Restrictions:
Restricted to majors of CLIN

Classification Restrictions:
Restricted to class of SR

Prerequisite(s): (CLSC 4471 w/C or better ) AND (CLSC 4472 w/C or better)

Corequisite(s): CLSC 4476

CLSC 4671. Can Use Over-Incorrect #.
Preceptorship I (0-0-21) Techniques and their applications in routing analysis, clinical microbiology, hematology, and coagulation in the clinical laboratory setting. Restricted to major: CLIN. Corequisite: CLSC 4671. Prerequisite: CLSC 4302 with a grade of "C" or better.

Department: Clinical Laboratory Science

6 Credit Hours
21 Total Contact Hours
0 Lab Hours
0 Lecture Hours
21 Other Hours

Major Restrictions:
Restricted to majors of CLIN

Corequisite(s): CLSC 4145

CLSC 4706. Preceptorship I.
Analysis Techniques I (0-0-21) Techniques and their applications in routine analysis, clinical microbiology, hematology and coagulation in the clinical laboratory setting. Co-requisite: CLSC 4114. Prerequisite: Admission to the upper-division and CLSC 4302.

Department: Clinical Laboratory Science

7 Credit Hours
21 Total Contact Hours
0 Lab Hours
0 Lecture Hours
21 Other Hours

Classification Restrictions:
Restricted to class of JR,SR

Corequisite(s): CLSC 4114
CLSC 4707. Preceptorship II.
Preceptorship II (0-0-21) Procedures in clinical chemistry, immunohematology and serological applications in the clinical laboratory. Includes practicum. Restricted to major: CLIN. Prerequisites: Admission to the upper-division, CLSC 4706, and department approval.
Department: Clinical Laboratory Science
7 Credit Hours
21 Total Contact Hours
0 Lab Hours
0 Lecture Hours
21 Other Hours
Major Restrictions:
Restricted to majors of CLIN
Classification Restrictions:
Restricted to class of JR,SR

CLSC 4708. Preceptorship III.
Preceptorship III (0-0-27) This elective course will allow Clinical Laboratory Sciences students to practice their skills in a clinical settings. Prerequisite: Admission to the upper-division.
Department: Clinical Laboratory Science
7 Credit Hours
27 Total Contact Hours
0 Lab Hours
0 Lecture Hours
27 Other Hours
Classification Restrictions:
Restricted to class of JR,SR

CLSC 4742. Preceptorship I.
Preceptorship I (0-0-21) Techniques and their applications in routine analysis, clinical microbiology, hematology, and coagulation in the clinical laboratory setting. Restricted to major: CLIN. Corequisite: CLSC 4145. Prerequisite: CLSC 4302.
Department: Clinical Laboratory Science
7 Credit Hours
21 Total Contact Hours
0 Lab Hours
0 Lecture Hours
21 Other Hours
Corequisite(s): CLSC 4145

CLSC 4746. Preceptorship II.
Preceptorship II (0-0-21) Procedures in clinical chemistry, immunohematology, and serological applications in the clinical laboratory. Includes practicum. Restricted to major: CLIN. Prerequisites: CLSC 4706 or CLSC 4742, and department approval.
Department: Clinical Laboratory Science
7 Credit Hours
21 Total Contact Hours
0 Lab Hours
0 Lecture Hours
21 Other Hours

CLSC 4872. Preceptorship II.
Preceptorship II (0-0-21) Procedures in clinical chemistry, immunohematology, and serological applications in the clinical laboratory. Includes practicum. Restricted to major: CLIN. Prerequisites: CLSC 4471 with a grade of "C" or better and department approval.
Department: Clinical Laboratory Science
8 Credit Hours
21 Total Contact Hours
0 Lab Hours
0 Lecture Hours
21 Other Hours
CLSC 4876. Preceptorship III.
Preceptorship III (0-0-32) The preceptorship courses (I, II, III) are designed to encompass rotations in seven different clinical sites. Procedures in clinical chemistry, immunohematology, microbiology, serology, coagulation, and hematology. Includes practicum. Restricted to major: CLIN. Prerequisites: CLSC 4471 and CLSC 4872 each with a grade of "C" or better.

Department: Clinical Laboratory Science

8 Credit Hours
32 Total Contact Hours
0 Lab Hours
0 Lecture Hours
32 Other Hours