CLINICAL LAB SCIENCES (CLS) (CLS)

CLS 101 Intro to Clinical Lab Sciences 1 cr
This course presents an overview of the CLS profession, along with career options and job opportunities for certified clinical laboratory scientists. The course also includes an introduction to the subspecialties in CLS, along with strategies for progressing through the B.S. degree program at USA. Taught Spring Semester.

CLS 290 Clinical Biochemistry 3 cr
This course presents the chemistry of human metabolism and its relationship to disease, structure and function of carbohydrates, lipids, proteins, enzymes, and nucleic acids. Taught Spring semester. Prerequisite: CH 201
Prerequisite: CH 201 (may be taken concurrently) Minimum Grade of D

CLS 310 Clinical Genetics 3 cr
Presents an integrated, systems-based approach in identifying clinically significant bacterial pathogens affecting either usually healthy or immunocompromised patients. Laboratory setting supplies basic and advanced bacterial identification methods. Taught Summer semester. Prerequisite: CLS 290 or (BMD 321 and BMD 322). Special fee.
Prerequisite: CLS 290 Minimum Grade of D or (BMD 321 Minimum Grade of D and BMD 322 Minimum Grade of D)

CLS 320 Hematology I 4 cr
This course presents an introduction to the hematopoietic system, the development of blood cells, normal cell morphology and blood dyscrasias. It is also a study of hemostasis theory and evaluation of coagulation disorders. The laboratory component focuses on normal cell morphology. and performance of coagulation testing procedures. Taught Summer semester. Special fee.

CLS 325 Clinical Laboratory Methods 2 cr
This course is an introduction to basic techniques used in the collection and testing of clinical laboratory specimens. It also includes mathematics calculations commonly used in clinical and biological laboratories. Taught Summer semester. Prerequisite: MA 112 and ST 210. Special fee.
Prerequisite: (MA 112 Minimum Grade of D or MA 171 Minimum Grade of D) and (ST 175 Minimum Grade of D or ST 210 Minimum Grade of D)

CLS 330 Serology 2 cr
This course is a study of theory and basic serological techniques used in the evaluation of infectious and autoimmune connective tissue diseases. The course also includes a study of theory, laboratory techniques, and evaluation of cerebrospinal, amniotic, synovial, and serous fluids. Taught Summer semester. Prerequisite: BMD 401. Special fee.
Prerequisite: (BMD 370 Minimum Grade of D or BMD 401 Minimum Grade of D)

CLS 341 Clin Chem & Instrumentation I 4 cr
This is the first of a two course sequence that studies analytical methods used in the clinical laboratory to measure substances found in blood and other body fluids, and the application of those measurements in diagnosing, monitoring, and treating disease. The laboratory will focus on basic clinical chemistry techniques. Taught Summer semester. Special fee.

CLS 350 Clin Parasitology and Mycology 3 cr
Provides essential knowledge of medically important parasites, mycobacteria, fungi, and viruses. Microorganism characteristics, life cycle, pathophysiology, distribution, and control are all covered. Laboratory sections stress microorganism isolation and identification. Taught Fall semester. Special fee.

CLS 360 Diagnostic Microbiology I 4 cr
Introduces medically important bacteria and their relationship to human disease. Emphasis is placed on host-bacteria interactions, metabolism, taxonomy, antimicrobial therapy, and control mechanisms. Laboratory segment focuses upon bacterial cultivation and isolation techniques. Taught Spring semester. Special fee.

CLS 390 Sp Top- 1-4 cr
Topics of current interest in the clinical laboratory sciences. May be taken more than once if course subject and content varies. Requires permission of Department Chair.

CLS 394 Directed Study 2-4 cr
Laboratory research conducted in conjunction with faculty-directed projects.

CLS 410 Diagnostic Microbiology II 5 cr
Presents an integrated, systems-based approach in identifying clinically significant bacterial pathogens affecting either usually healthy or immunocompromised patients. Laboratory setting supplies basic and advanced bacteral identification methods. Taught Summer semester. Prerequisite: CLS 360 or BMD 402. Special fee.
Prerequisite: CLS 360 Minimum Grade of D or (BMD 380 Minimum Grade of D or BMD 402 Minimum Grade of D)

CLS 420 Hematology II 4 cr
This is an advanced study and evaluation of the hematopoietic system and blood cells including morphology in disease states, such as blood dyscrasias, leukemias, and lymphomas. Taught Fall semester. Special fee.

CLS 431 Clin Chem & Instrumentation II 4 cr
This is the second of a two course sequence that studies analytical methods used in the clinical laboratory to measure substances found in blood and other body fluids, and the application of these measurements in diagnosing, monitoring, and treating disease. The laboratory will focus on automated clinical chemistry instrumentation and molecular diagnostic techniques. Taught Fall semester. Special fee.

CLS 432 Immunohematology II 5 cr
This course is the study of immunohematological theory and techniques associated with blood banking and transfusion practice. It includes a study of blood components and deriviatives, blood group systems, testing and evaluation of compatibility, and problem solving techniques. Taught Fall semester. Special fee.

CLS 435 Intro to Lab Management - W 2 cr
This course is a study of principles and practices of laboratory decision making, legal and regulatory compliance, fiscal planning, staffing, leadership/motivation, and quality assurance. Educational principles will also be covered. Students will complete the online portion of the course in spring semester and present management project in the following semester. Taught Spring semester.

CLS 436 Introduction to Research-W 2 cr
Basic concepts of scientific inquiry are presented to develop an appreciation for research as an element for contributing to the body of knowledge in the clinical laboratory sciences. Taught Fall semester.

CLS 440 Hematology Practicum 3 cr
Supervised clinical practice in hospital hematology and hemostasis laboratories. Taught Spring semester.

CLS 445 Clinical Microbiology Practic 3 cr
Supervised clinical practice in hospital transfusion service. Taught Spring Semester.

CLS 452 Immunohematology Practicum 3 cr
Supervised clinical practice in hospital transfusion service. Taught Spring semester.

CLS 453 Clinical Chemistry Practicum 3 cr
Supervised clinical practice in hospital chemistry laboratory. Taught Spring semester.

CLS 465 Senior Project - W 2 cr
Studies in case histories and clinical correlations. Requires a formal paper and presentation. Requires special permission.

CLS 491 Field Pract Hemat-Hemost 3 cr
Specialized practicum for students with extensive training and experience in hematology and hemostasis.

CLS 492 Field Pract Immunology 1 cr
Specialized practicum for students with extensive training and experience in immunology/immunochemistry.

CLS 493 Field Pract Clin Microbiology 4 cr
Specialized practicum for students with extensive training and experience in clinical microbiology.

CLS 494 Field Pract Immunohem 3 cr
Specialized practicum for students with extensive training and experience in blood bank.

CLS 495 Clinical Correlation & Review 3 cr
This is a capstone course covering advanced methods and pertinent case studies with emphasis on intralaboratory interpretation of patient data. Taught Summer semester.

CLS 499 Senior Honors Project - H - W 3-6 cr
Under the advice and guidance of a faculty mentor, honors students will identify and carry out a research project relevant to the field of Clinical Laboratory Sciences study that will lead to a formal presentation at the annual Honors Student Colloquium. The senior project will be judged and graded by three faculty members chaired by the honors mentor. This course is required for Honors recognition and may be repeated for up to 6 credit hours. Requires permission of department chair and completion of an approved project prospectus.