

CLS Clinical Laboratory Sciences

CLS 120 CLINICAL LABORATORY SCIENCES AS A CAREER. (1)

Presentation of information about the various careers in clinical laboratory science via lectures, demonstrations and field trips. Open to students wishing to explore the field of clinical laboratory sciences.

CLS 500 INTEGRATIVE CARE FOR HEALTH SCIENCES. (1-3)

Integrative care involves using the best possible treatments from both complementary/alternative and allopathic medicine, based on the patient's individual needs and condition. The selection of health care providers should be based on good science and this course will introduce students to complementary and alternative health care providers and the practices and beliefs of these practices as well as the scientific evidence in support of these practices. The course integrates successes from both worlds and describe the safest, least invasive, most cost-effective approach while incorporating a holistic understanding of the individual. May be repeated to a maximum of 3 credits (1 credit didactic and up to two credits experiential/research). (Same as AT 500, HS 500, CNU 500, CD 500, PAS 500, PT 686.)

CLS 501 SEMINAR IN ADVANCED HEMATOLOGY. (2)

Study of the biochemical aspects of blood cell physiology and kinetics as applied to practice in the clinical hematology laboratory and a review of current related literature. This course is designed for practicing clinical laboratorians or medical technologists who are pursuing a graduate degree. Prereq: BCH 401G or equivalent and consent of instructor.

CLS 520 REPRODUCTIVE LABORATORY SCIENCE. (3)

This is a course designed to educate students in basic theories, procedures and quality assurance concepts of assisted reproduction. It will consist of two lectures per week and a limited number of three-hour laboratories. Computer-assisted instruction and video-tapes will also be used. Prereq: Admission to the professional CLS program; or a baccalaureate degree with CLS certification; or consent of instructor.

CLS 610 ETHICS IN CLINICAL SCIENCES RESEARCH. (1)

Students will examine ethical issues in biomedical research using a case-study approach. Representative issues addressed may include data selection and retention, plagiarism, scientific review of grants and manuscripts, scientific misconduct, and informed consent. Prereq: Graduate student status. (Same as CD/CNU/PT/RAS 610.)

CLS 816 HISTOTECHNOLOGY II. (3)

The study of principles and applications of microtomy, frozen sectioning and some special staining techniques.

CLS 822 BIOCHEMISTRY FOR CLINICAL SCIENCES. (3)

A presentation of the biochemistry of carbohydrates, lipids, proteins, amino acids and nucleic acids and exploration of major metabolic pathways as the basis of clinical chemistry. Case studies will be

used to emphasize the role of biochemistry in the understanding of clinical science. Prereq: CHE 105, 107 and 115, CHE 230 or CHE 236 or equivalent and consent of instructor.

CLS 832 BASIC CLINICAL CHEMISTRY. (1)

The study of the theory and practice of clinical chemistry laboratory testing, including quality control, instrumentation principles, problem-solving, and appreciation of accuracy of and confidentiality for patient laboratory findings. Prereq: Admission into the Clinical Laboratory Sciences Professional Program or consent of instructor.

CLS 833 BASIC HEMATOLOGY. (1)

The theory and practice of clinical hematology laboratory testing, including manual and automated procedures, instrumentation principles, quality assurance, and problem-solving. Hematopoiesis, hemostasis, and blood cell function are discussed as they relate to clinical laboratory practice. Special emphasis is placed on the relationship of clinical hematology testing to pathophysiology and on the acquisition of valid test results. Prereq: Admission into the Clinical Laboratory Sciences Program or consent of instructor.

CLS 835 CLINICAL IMMUNOLOGY. (3)

An overview of immunology with a molecular basis for the immune responses and the role of genetics in immunological disorders. Molecular biological techniques in the modern clinical laboratory will be emphasized. Prereq: Admission into the Clinical Laboratory Sciences Professional Program.

CLS 836 LABORATORY ORGANIZATION AND MANAGEMENT. (1-3)

An overview of clinical laboratory organization. Content will include regulatory, management, personnel issues; leadership; quality assurance and improvement strategies; principles of education related to laboratory management; and other topics relevant to clinical laboratory organization. Prereq: Admission into the Clinical Laboratory Sciences Professional Program.

CLS 838 BASIC IMMUNOHEMATOLOGY. (1)

Introduction to the principles and practice of blood banking including blood group systems, routine serologic testing, blood collection and processing and component therapy. Prereq: Admission to the Clinical Laboratory Sciences Program and CLS 835 or equivalent.

CLS 843 ADVANCED CLINICAL HEMATOLOGY AND BODY FLUID ANALYSIS. (3)

The theory and practice of clinical hematology laboratory testing as it relates to hematological disorders and disorders of body fluids. Anemias, hemostasis and thrombotic disorders, leukemias and non-malignant leukocyte disorders, and body fluid disorders, including the reproductive system are discussed as they relate to clinical laboratory practice. Special emphasis is placed on pathophysiology, the clinical correlation of laboratory test results with hematological and body fluids disorders, and the interpretation and resolution of discrepant results. Prereq: CLS 833 or consent of the instructor.

CLS 844 ADVANCED CLINICAL CHEMISTRY. (3)

A study of the theory and evaluation of specialized clinical chemistry testing, including toxicology, therapeutic drug monitoring, endocrine function, and quality assurance issues. Prereq: Admission into the Clinical Laboratory Sciences Professional Program; biochemistry, immunology (may be taken concurrently) and CLS 832 or equivalent.

***CLS 848 MOLECULAR TECHNIQUES AND ADVANCED IMMUNOHEMATOLOGY. (3)**

An introduction to clinically relevant molecular techniques including electrophoresis, northern, Southern and western blotting, ELISA and PCR; advanced immunohematology focuses on transfusion therapy, apheresis and component therapy, hemolytic diseases, histocompatibility testing, and addresses federal regulation of blood banking. Prereq: Admission to the Clinical Laboratory Sciences Program and CLS 838 or equivalent.

CLS 851 BASIC CLINICAL MICROBIOLOGY. (1)

The study of medically significant microbiology, including commensal flora, normal flora and pathogens. Lectures also cover microbial physiology, interactions between host and pathogenic microorganisms, and the clinical and epidemiological consequences of these interactions. Prereq: Admission to the Clinical Laboratory Sciences Program.

CLS 856 ADVANCED CLINICAL MICROBIOLOGY. (3)

The study of medically important bacteria, with an emphasis on anaerobes and mycobacteria, and clinically significant fungi, parasites and viruses. Clinical bacteriology knowledge will be applied through case studies. Prereq: Admission to the Clinical Laboratory Sciences program and CLS 851 or equivalent.

CLS 860 BLOOD COLLECTION. (1)

The theory and practice of blood collection related to routine and special specimen collection for clinical laboratory testing. Particular emphasis is placed on quality assurance and safe practice issues associated with venipuncture and skin puncture. Students perform venipunctures on artificial arms, actual patients and fellow students. The course includes a mandatory clinical component. Experience collecting venous blood specimens for laboratory testing. Students will receive instructions on proper procedures for phlebotomy and will practice on mannequin arms and each other prior to collecting blood from adult ambulatory and bed patients; pediatric patients; and nursery patients. Offered on a Pass/Fail basis only. Prereq: Admission into the Clinical Laboratory Sciences Professional Program, or consent of the instructor and completion of required immunizations.

CLS 881 IMMUNOHEMATOLOGY PRACTICUM. (1-5)

A supervised practicum in which the student integrates theory and practice of immunohematology in a clinical setting. Offered on a Pass/Fail basis only. Laboratory, 35-40 hours per week. The number of credits will depend on the student's prior experience. Prereq: Admission into the Clinical Laboratory Sciences Program and CLS 848 (may be taken concurrently).

CLS 882 PRACTICUM IN CLINICAL CHEMISTRY. (1-5)

A supervised practicum in which the student integrates theory and practice of clinical chemistry in a health care setting. Offered on a Pass/Fail basis only. Laboratory, 35-40 hours per week. The

number of credits will depend on the student's prior experience. Prereq: Admission into the Clinical Laboratory Sciences Program and CLS 844 (may be taken concurrently).

CLS 883 PRACTICUM IN CLINICAL HEMATOLOGY. (1-5)

A supervised practicum in which the student integrates theory and practice of clinical hematology in a health care setting. Offered on a Pass/Fail basis only. Laboratory, 35-40 hours per week. The number of credits will depend on the student's prior experience. Prereq: Admission into the Clinical Laboratory Sciences Program and CLS 843 (may be taken concurrently).

**CLS 884 PRACTICUM IN
CLINICAL MICROBIOLOGY. (1-5)**

A supervised practicum in which the student integrates theory and practice of clinical microbiology in a health care setting. Offered on a Pass/Fail basis only. Laboratory, 35-40 hours per week. The number of credits will depend on the student's prior experience. Prereq: Admission into the Clinical Laboratory Sciences Program and CLS 856 (may be taken concurrently).

CLS 885 SPECIAL TOPICS PRACTICUM. (1-8)

This course offers students an opportunity to observe and learn in areas of clinical laboratory sciences not found in the routine laboratory, such as flow cytometry, electron microscopy, DNA analysis. Rotations are arranged to meet needs of each student. May be repeated to a maximum of eight credits. Laboratory, 35-40 hours per week. Prereq: Enrollment in CLS professional program or consent of Division Chair.

CLS 890 LABORATORY INVESTIGATION. (1-3)

Students will demonstrate knowledge and expertise in CLS through interpretation and integration of CLS issues. Student will analyze laboratory data through patient-focused scenarios and integrate information from multiple laboratory reports for the patient care management. Students will apply the principles of research technique to analyze problems arising from technical methods, disease correlation, or other pertinent problem areas in laboratory sciences and will use library sources, computer skills, and presentation skills in the pursuit of solutions to identified problems. Prereq: Completion of all requirements for the CLS program; may be concurrent.

**CLS 895 ADVANCED TOPICS IN CLINICAL
LABORATORY SCIENCES (INDEPENDENT STUDY). (1-6)**

An elective for students in selected subjects in-depth or carry out a limited laboratory project. Prereq: Consent of Division Chair.