Clinical laboratory science is a biology/chemistry-based bachelor's degree that prepares students for exciting, challenging and dynamic careers in places such as hospitals, clinic laboratories, public health laboratories, and research laboratories. A degree in clinical laboratory science can open doors to a wide variety of career opportunities, most commonly through a national certification as a medical laboratory scientist. The medical laboratory scientist, also known as a medical technologist, plays a major role in the diagnosis, treatment, and prevention of disease. These professionals use sophisticated laboratory instruments to perform complex tests in microbiology, immunology, immunohematology, hematology, and clinical chemistry. Some job settings will require testing in many of these fields, while others will be more specialized. As a medical laboratory scientist you will collect samples from patients, analyze samples, and provide technical information about test results to physicians. Technical aspects of the job include operating, calibrating, and maintaining laboratory equipment.

**CLS Skills**
- Analysis
- Compassion
- Detail oriented
- Finger dexterity
- Observant
- Self-Disciplined
- Communication
- Stamina
- Technical Skill
- Mathematic Skill
- Leadership
- Problem solving

**Degrees and Certifications**
- Bachelor of Science in CLS
- Master of Science in CLS
- Certification by the ASCP Board of Certification

**Sample Job Titles**
- Medical Technologist (MT)
- Medical Lab Technologist (Medical Lab Tech)
- Clinical Laboratory Scientist (CLS)
- Medical Laboratory Technician
- Clinical Laboratory Manager
- Clinical Laboratory Technologist
- Microbiologist
- Clinical Research Assistant
- Clinical Research Coordinator
- Technical Specialist
- Pathology Laboratory Manager
- Laboratory Services Director
- Cytology Laboratory Manager

**Possible Job Settings**
- Hospital
- Pharmaceutical Lab
- Pathology Lab
- Corporate Research
- Government Research
CAREER PATHS

...in Hematology

Hematology is the study of blood and diseases of the blood. A medical laboratory scientist working in hematology diagnoses diseases of the blood by analyzing blood smears on specialized instruments and under a microscope. They examine blood cells for abnormalities to discover disease processes that cause harm to the body. Hematologists can uncover cancers, bleeding disorders, infections, and various genetic disorders.

...in Immunology

Immunology refers to a type of analysis that uses antibodies to detect a specific chemical of interest. Antibodies are produced in commercial labs and are typically used to measure hormones, drugs, and other complex molecules. Immunologic analysis can be used to detect chemicals such as those produced when a person has a heart attack.

...in Microbiology

Microbiology is the study of microorganisms such as bacteria, viruses, yeasts, fungi, and parasites. When a pathogen enters the body, normal microorganisms are disrupted resulting in illness and disease. Laboratory science in microbiology involves detecting and preventing illness by telling the physician what organism is causing the disease. Infectious organisms are detected by looking in a microscope or by using chemical, immunological or molecular techniques. Microbiology settings for work include hospital laboratories, public health laboratories, reference or independent laboratories, physician office laboratories, or research laboratories.

...in Immunohematology

Immunohematology is commonly known as Blood Banking. Blood banking includes the processes of collecting blood from donors, testing the donor blood for infectious diseases, processing the blood into the various blood components, and ensuring that the donor blood is safe to transfuse to a patient. A Medical Laboratory Scientist working in a blood bank plays a vital role in providing blood and blood components to patients undergoing operations, experiencing severe trauma, or suffering from medical conditions.

...in Cytogenetics

Cytogenetics is a branch of genetics that is concerned with the study of the structure and function of chromosomes. Chromosomes are present in the cells of the body and contain many genes. Information about susceptibility to certain disorders can be determined by studying chromosomes. A cytogenetic technologist counts and compares the banding patterns of chromosomes. Uncovering chromosomal defects can help a healthcare team identify and sometimes prevent genetic disorders. The medical laboratory professional working in the field of cytogenetics plays an important part in recognizing genetic syndromes and acquired diseases.
Molecular biology attempts to understand the interactions between the various systems of a cell, including the interactions between different types of DNA, RNA, and protein within the cell. Technologists using molecular biology techniques can characterize, isolate, and manipulate the molecular components of cells and organisms. Using molecular biology, technologists can ensure that blood transfusions are safe from many pathogens. They can also identify pathogens that cause disease, allowing physicians to provide the correct treatment and medication. Additionally, molecular technology allows a detailed look at the genetic material that makes up the chromosomes in the body.

RESOURCES

Student Organizations
Texas State Society of Clinical Laboratory Scientists: http://www.studentorgs.txstate.edu/clssociety/

Professional Organizations
American Society for Clinical Laboratory Science: http://www.ascls.org
American Society of Clinical Pathology: http://www.ascp.org
Texas Association for Clinical Laboratory Science: http://tacls.org/
American Association for Clinical Chemistry: http://www.aacc.org/Pages/default.aspx
Clinical Laboratory Management Association (CLMA): http://www.clma.org/

Career Research Links
O*Net Online: http://online.onetcenter.org/
Labs are Vital: http://www.labsarevital.com/html/main.isx?
Diagnostic Detectives: http://www.medlabcareers.msu.edu/links.html

Job/Internship Search Links
Texas State CLS Job Opportunities: http://www.health.txstate.edu/cls/resources/career-development.html
Laboratory Science Careers: http://www.labsciencecareers.com/

Information for this handout compiled from:
Texas State University: http://www.health.txstate.edu/cls/about.html
O*NET Online: http://www.onetonline.org/link/summary/29-2011.00
The University of Kansas-School of Health Professions: http://cls.kumc.edu/clinical-laboratory-science/what-is-clinical-laboratory-science.html
ASCP: http://www.ascp.org/certification/
Texas State Society of Clinical Laboratory Scientists: http://www.studentorgs.txstate.edu/clssociety/