MEDICAL LABORATORY SCIENCE

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Program Director
Saint Francis Health System
• Medical laboratory science is a diagnostic science that involves the performance of simple to complex testing procedures in a clinical laboratory.

• Medical technologists perform lab testing on blood specimens by applying biology and chemistry principles to aid in the diagnosis of disease.

• Other names for Medical Laboratory Science: Medical Technology, Clinical Laboratory Science
MEDICAL LABORATORY SCIENCE

• The profession links technology and information to health and medicine.

• Lab results account for approximately 70% of the objective information used by physicians for the diagnosis, management, and resolution of patient health problems.
What kinds of diseases do laboratory tests detect?

- Cancer
- Heart attacks
- Diabetes
- Bacterial and viral infections (COVID-19)
- Drugs of abuse
- Therapeutic drugs
What skills are needed?

- Problem solving skills
- Critical thinking skills
- Effective communication
- Multitasking
- Detail-oriented
- Work well both independently and as part of a team
- Commitment to the patient
What are the educational requirements?

1. **College**
   - Bachelor of Science degree

2. **Clinical Internship**
   - NAACLS Accredited Medical Laboratory Science Program

3. **National Certification Examination**
   - ASCP
Does Oklahoma have a NAACLS accredited Medical Laboratory Science program?

1. Saint Francis Health System, Tulsa
2. Comanche County Memorial Hospital, Lawton
3. Mercy Hospital, Ada/Ardmore/OKC
Clinical Education

- Located onsite at Saint Francis Health System in Tulsa, Oklahoma
- 51 week clinical internship: May 23, 2022 – May 11, 2023
- Full-time program
  - 60% in clinical rotations within Saint Francis Health System
  - 40% in a classroom setting at Saint Francis Hospital
Phlebotomy

- Phlebotomy involves the proper collection, handling, and processing of blood specimens.
Hematology

- Evaluate normal/abnormal cells in blood
  - White blood cells
  - Red blood cells
  - Platelets
- Analysis of urine and other body fluids such as cerebrospinal fluid and pleural fluid
- Assessment of the blood clotting system
  - Monitor patients on blood thinner
  - Detect factor deficiencies
What is in a drop of blood?
What is wrong with these red blood cells?
What is wrong with these red blood cells?
What is wrong with these red blood cells?
What is wrong with these white blood cells?
Chemistry

• Biochemical analysis of blood to assess metabolic disorders and organ function
Immunology

- The immune system is being bombarded by all sorts of microbes all the time.
- Even though we're not aware of it, it is saving our lives every day.
- Through immunologic techniques, we can detect allergies, autoimmune diseases, and infectious diseases.
Blood Bank

- Blood Bank performs pre-transfusion testing on red blood cells and serum in order to ensure that donated blood products are compatible with the recipient.
Microbiology

• Isolates, identifies, and performs antibiotic susceptibility testing on microorganisms.
E. Coli  
Staphylococcus  
Salmonella
• Microbiology Respiratory Pathogen Panel by PCR
  • Adenovirus
  • Coronavirus (229E, KHU1, NL63, OC43)
  • Human Metapneumovirus
  • Human Rhinovirus/Enterovirus
  • Influenza A and B
  • Parainfluenza
  • Respiratory Syncytial Virus (RSV)
  • Bordetella pertussis
  • Chlamydophila pneumoniae
  • Mycoplasma pneumoniae
  • Bordetella parapertussis
  • Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV-2)
Genetics

- Molecular genetics involves amplification of DNA to detect genetic disorders.
- Cytogenetics consists of chromosome analysis.
What are the admission requirements?

- Applicants must be one of the following:

1. Baccalaureate Candidate (3 + 1 Option)
   - 3 years of college + 1 year MLS internship
   - Degree will be in Medical Laboratory Science

2. Post Baccalaureate Candidate (4 + 1 Option)
   - Baccalaureate degree + 1 year MLS internship
   - Degree will be in a Biology, Chemistry, or related major
What are the admission requirements?

• Applicant must meet the minimum GPA for admission:

1. 2.50 cumulative GPA and 2.50 cumulative GPA

2. Grade of C or better in prerequisite classes

• Average incoming GPA is approximately 3.30
What are the academic prerequisites?

- Biology (minimum of 16 credit hours)
  - Microbiology
  - Immunology
  - Anatomy and/or Physiology

- Chemistry (minimum of 16 credit hours)
  - General Chemistry (2 courses)
  - Organic Chemistry
  - Biochemistry

- Math
  - College Algebra or higher
MEDICAL LABORATORY SCIENCE

• Application Process: **Step 1**
  - Apply in the fall of the year preceding entry into the program.
  - Application and official transcripts are due by October 15th.
  - Online applications are available from [www.occlsa.org](http://www.occlsa.org)

• Application Process: **Step 2**
  - Two online Academic Reference forms
  - Employer reference (if applicable)
  - Criminal background report through [www.castlebranch.com](http://www.castlebranch.com)
• Selection Criteria
  • Interview (oral and written)
  • Career motivation
  • Knowledge of profession
  • Grade point average
  • Communication skills
  • Academic references
  • Employment reference
  • Background check
Employment/Scholarships

- Part-time employment as a student lab tech is available on a limited basis during the year.

- Scholarship opportunities are available from Saint Francis Health System, American Society for Clinical Pathology (ASCP), American Proficiency Institute (API), and American Society for Clinical Laboratory Science (ASCLS).
MEDICAL LABORATORY SCIENCE

• Completion of the MLS Program

• Baccalaureate candidate (3+1 student) will earn 30 hours of college credit to complete a B.S. degree from the university and receive a certificate of completion and pin from the medical laboratory science program.

• Medical laboratory science program graduates are eligible to take the national ASCP Board of Certification exam.

• Graduation is not contingent upon passing the national certification exam.
### Three Year Average Program Outcomes

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<thead>
<tr>
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<th>Saint Francis Health System</th>
<th>NAACLS Benchmarks</th>
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<tbody>
<tr>
<td>Graduation Rate</td>
<td>100% (36/36)</td>
<td>70%</td>
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<tr>
<td>Attrition Rate</td>
<td>0% (0/36)</td>
<td>N/A</td>
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<tr>
<td>Certification Pass Rate</td>
<td>94% (34/36)</td>
<td>75%</td>
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<tr>
<td>Job Placement Rate</td>
<td>100% (36/36)</td>
<td>70%</td>
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<tr>
<td>Retention Rate at SFHS</td>
<td>89% (32/36)</td>
<td>N/A</td>
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MEDICAL LABORATORY SCIENCE

- Perfect blend of science, medicine, and technology
- Challenging, interesting, continuously changing
- Excellent career outlook
- “I wish I had heard about this sooner!”
## CONTACT A HOSPITAL PROGRAM DIRECTOR FOR MORE INFORMATION

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Address</th>
<th>Phone 1</th>
<th>Phone 2</th>
<th>Program Director</th>
<th>Email</th>
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<tbody>
<tr>
<td>Comanche County Memorial</td>
<td>3401 West Gore Boulevard, Lawton, OK 73505</td>
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<td>Phone: 940-781-3910</td>
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<td>Mercy Hospital</td>
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