Department of Medical Laboratory Sciences and Biotechnology

Jefferson College of Health Professions
Presentation Overview

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Dr. Barbara Goldsmith
DEPARTMENT OF MEDICAL LABORATORY SCIENCES AND BIOTECHNOLOGY, CHAIR AND PROFESSOR
THOMAS JEFFERSON UNIVERSITY HOSPITAL, DIRECTOR, CLINICAL LABORATORIES, POINT OF CARE, AND QUALITY
DEPARTMENT OF PATHOLOGY, ANATOMY, AND CELL BIOLOGY, CLINICAL PROFESSOR

Barbara.Goldsmith@jefferson.edu
215-503-7844
One Department
Three Programs

Department of Medical Laboratory Sciences and Biotechnology

- Biotechnology
- Cytotechnology and Cell Sciences
- Medical Laboratory Science

CREATE WHAT’S NEXT
Biotechnology

Biotechnologists develop products and solve problems that address critical needs.

Biotechnologists are adaptable to many fields, utilizing their training in cutting edge technologies.

- Medicine
- Bioprocessing
- Forensics
- Agriculture
Cytotechnologists collaborate with pathologists to evaluate cellular specimens from all organs for the presence and diagnosis of disease.

The Cytotechnology and Cell Sciences program at Jefferson has a comprehensive curriculum to educate and train students to:

- Diagnose cancers, other diseases, and infections
- Screen patients for pre-cancerous conditions or signs of recurrent disease
- Guide target-specific therapy
- Participate in rapid on-site evaluation of a specimen during surgical interventions
Medical laboratory scientists (MLSs) work behind the scenes to provide clinicians with the laboratory results needed to diagnose, treat, and manage their patients.

MLSs analyze blood and other body fluids to test for conditions such as diabetes, heart disease, infection, and leukemia.
The MLS’s Role in the COVID-19 Pandemic Response: We Save Lives

Specimen Collection and Transport

Specimen Processing

Specimen Testing

COVID-19 Treatment
**DEGREE AND TRACK OPTIONS**

**Undergraduate**
- BS, One-Year Option
- BS, Two-Year Option

**Undergraduate and Graduate**
- 3+2 Health Sciences BS/MLSB MS
- Combined BS/MS

**Graduate**
- MS, One-Year Option
- MS, Two-Year Option
- Advanced MS*, One-Year Option
- Advanced MS*, Two-Year Option
- Graduate Certificates (Part- and Full-Time Options)

**Concentration Spotlight**
*Concentration in Biopharmaceutical Process Development*

In collaboration with the Jefferson Institute for Bioprocessing, this concentration is available to biotechnology students in the BS or MS one-year tracks.

*Advanced MS is designed for students with a BS in biotechnology, cytotechnology, or medical laboratory science/medical technology*
Lori, an MLS student, is performing a blood type on a patient specimen.

For patients to safely receive blood, their blood type must be identified by a laboratory professional.

Patients suffering from anemia, such as sickle cell anemia, commonly receive blood transfusions.
Biotechnologist

OUTLOOK

With an ever-changing and evolving marketplace, adaptability and flexibility are paramount to success. Biotechnologists have the unique ability to adapt and innovate in any research environment and product-driven industry. Graduates of our program have been very successful in entering the workplace in various types of industry.

EMPLOYERS OF JEFFERSON GRADUATES

• Pharmaceutical Companies
• Biotechnology Companies
• Therapeutic Manufacturing
• Biomedical Industry-based Laboratories
• Academia
## Cytotechnologist

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<th>Job Title</th>
<th>Graduation Rate</th>
<th>Placement Rate</th>
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<tr>
<td>Cytotechnologist</td>
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**Employers of Jefferson Graduates**

- Hospital Laboratories, Community and University Medical Centers
- Commercial Laboratories
- Academia
- Professional Societies
- In Vitro Diagnostics Companies
Medical Laboratory Scientist

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ASCP Board of Certification (BOC)
- Gold standard certification body for laboratory professionals, including cytotechnologists and medical laboratory scientists

American Society of Cytopathology (ASC)
- In association with the professional accreditation agency CAAHEP, the ASC’s Cytology Program Review Committee oversees and guides professional education, training, and advancement

American Society for Clinical Laboratory Science (ASCLS)
- Grassroots organization and voice for medical laboratory scientists dedicated to making a positive impact in healthcare through professional, promotional, and educational activities
The 3+2 track option is what first attracted me to Thomas Jefferson University. It allowed me to jump right in with hands-on courses tailored to my field and finish my master’s degree a year early.

“One of the advantages of being part of a small program is the ability to respond quickly to community needs. During the COVID-19 pandemic, the Biotechnology program was able to mobilize a small volunteer production line to utilize our skills to manufacture viral transport media (VTM) transport devices, which are important for COVID-19 testing. Our production line provided the Jefferson health system with important test kits needed to continue testing during the pandemic, despite the major shortage of national supply lines.”

To learn more about Ellen’s involvement in this project, click here.
Stedisha’s affixed fascination in cellular microscopy made her gravitation to cytotechnology effortless.

“On a search for universities that offer graduate study in cytotechnology, Thomas Jefferson University dominated the list. In addition to being an accredited program, the professors are well accomplished and experienced.”

In her pursuit of knowledge and experience to guarantee maximum performance in applicable laboratory sciences, she finds that setting high standards for learning and remaining focused and humbled are key attributes to success in this program.
Ayris Chenault
RIVERSIDE, CA
CLASS OF 2020

I was searching for a versatile master’s program that would facilitate my learning experience beyond the classroom, and I’m glad I found the Medical Laboratory Science program at Thomas Jefferson University.

“This program taught me that laboratory testing is at the core of nearly every decision a clinician makes when diagnosing and treating a patient.”

This level of healthcare is often overlooked, and I’m humbled to have the opportunity to learn about medicine from the clinical laboratory perspective. Laboratory medicine is an ideal profession for students who are passionate about medicine.

Future medical laboratory science students should be prepared to study long and hard for a very rewarding career!
Dr. Scott Gygax, PhD
Vice Chair, MLSB
Associate Professor & Program Director
PhD, University of Connecticut Health Center, Farmington, CT
BA, Gettysburg College, Gettysburg, PA

Sean Chadwick, MS
Instructor
MS, University of Medicine and Dentistry of New Jersey, Newark, NJ
BS, Richard Stockton College of New Jersey, Galloway Township, NJ

Dr. Gygax has 15 years of executive and research & development experience in the fields of biotechnology, molecular biology, and microbiology for the medical diagnostic industry. Dr. Gygax has 37 publications and 8 patents.

Mr. Chadwick has 13 years of research & development experience in the fields of biotechnology, molecular biology, and microbiology for the medical diagnostic and pharmaceutical industries. Mr. Chadwick has 13 publications and 3 patents.

RESEARCH INTERESTS
Development of diagnostic assays and reagents for the medical and biotechnology industries
Development of quality management systems and investigation of product quality attributes
Cytotechnology and Cell Sciences

Dr. Tatiana Zorina, MD, PhD, CT(ASCP)
Associate Professor & Program Director
PhD, Academy of Sciences, St. Petersburg, Russia
MD, First Pavlov State Medical University of St. Petersburg, Russia
CT(ASCP), UPMC, Pittsburgh, PA

Dr. Zorina’s research interests include development of a dendritic cell based antitumor vaccination methodology and immunomodulatory approaches for the treatment of type 1 diabetes mellitus.

Kelly Lennen, MS, CT(ASCP)
Instructor
MS, Thomas Jefferson University, Philadelphia, PA
BS, University of Pennsylvania, Philadelphia, PA

Ms. Lennen is a certified cytotechnologist and Jefferson alumna. For many years she has brought her experience in the lab back to the classroom and shares her passion for cytology and pathology.

“Working in pathology is always engaging for me. Each patient, each specimen, is like a unique puzzle to solve.”
Valerie Jalicke, MS, MLS(ASCP)CM
Program Director & Instructor
MS, Thomas Jefferson University, Philadelphia, PA
BS, Thomas Jefferson University, Philadelphia, PA

Joshua Cannon, MS, MLS(ASCP)CM
Instructor & Education Coordinator
MS, Thomas Jefferson University, Philadelphia, PA
BS, Thomas Jefferson University, Philadelphia, PA

Michael Amato, MMedSc(Path), MLS(ASCP)CM, SCiCM, SMiCM, MLT
Instructor
MS, Charles Sturt University, New South Wales, AUS
BS, University of Windsor, ON, CAN

Joy Gould, MS, SBB(ASCP)BB, C, CQIA(ASQ), CPHQ
Instructor
MS, Thomas Jefferson University, Philadelphia, PA
BS, Rowan University, Glassboro, NJ
I chose Jefferson because of their sterling reputation for providing students with the knowledge, skills, and leadership required in today's healthcare environment. These attributes allow not only us as alumni to succeed, but more importantly, to help our communities and patients.

“Surrounded by passionate and compassionate individuals, Jefferson prepares students to be the best healthcare professionals for hospitals, laboratories, and most importantly, patients.”

While at Jefferson, take advantage of every opportunity available. Jefferson is a community of and for the students.
Sidney Yep, MS, MLS(ASCP)\textsuperscript{CM}
CLINICAL LABORATORY QUALITY ASSURANCE COORDINATOR
THOMAS JEFFERSON UNIVERSITY HOSPITAL
PHILADELPHIA, PA
CLASS OF 2017

I chose Jefferson for two reasons, the first being the prestige that comes from graduating from Thomas Jefferson University, and secondly, the fast-paced, accelerated graduate program offered.

As an MLS student, everything from classroom lectures to clinical rotations allowed me to gain an understanding of the different sides of the clinical laboratory and how they function separately as well as a whole.

“These experiences taught me the necessary skills needed to excel in healthcare, as well as helped me to view things not just from one angle, but from a more encompassing prospective.”
Next Steps

Office of Admissions

Undergraduate: Taylor Epley (Taylor.Epley@jefferson.edu)
Graduate: Seth Carver (Seth.Carver@jefferson.edu)

Visit www.Jefferson.edu/MLSB