



**JEFFERSON COLLEGE OF HEALTH PROFESSIONS
DEPARTMENT OF MEDICAL LABORATORY SCIENCES
& BIOTECHNOLOGY**

**BIOTECHNOLOGY
CYTOTECHNOLOGY & CELL SCIENCES
MEDICAL LABORATORY SCIENCE**

STUDENT HANDBOOK 2024-2025

THE PURPOSE OF THE HANDBOOK

This Student Handbook serves as a guide to the currently enrolled students of Biotechnology, Cytotechnology & Cell Sciences, Medical Laboratory Science and Certificate Programs within the Department of Medical Laboratory Sciences and Biotechnology of the Thomas Jefferson University College of Health Professions. The MLSB Handbook includes only department-specific policies, which are supplemental to the Jefferson College of Health Professions Handbook and the Thomas Jefferson University Student Handbook. Students are responsible for understanding academic policies and procedures of Thomas Jefferson University and the Jefferson College of Health Professions (JCHP). Important University wide policies, including the Community Standards and Student Sexual Misconduct Policy, and information on University Services are found on the Thomas Jefferson University academic policy website at <https://www.jefferson.edu/university/academic-affairs/schools/student-affairs/student-handbooks/university-policies.html>. Students are also directed to the policies and procedures contained in the JCHP Student Handbook, which can be found at <https://www.jefferson.edu/academics/colleges-schools-institutes/health-professions/student-resources.html>. The MLSB Department does not have an advanced placement or experiential learning policy.

Due to the unique nature of the coursework and curriculum design of the degree programs offered in MLSB, students should review all of these resources, as they are a guide for a successful student experience in laboratory education. As a student of Thomas Jefferson University, there is the expectation for high academic standards, ethical conduct and safety. That standard is set forth in this document and will be upheld by the Department of Medical Laboratory Sciences and Biotechnology. Be advised that academic and nonacademic misconduct at Thomas Jefferson University will be subject to disciplinary action. During departmental orientation, the Department will obtain documentation of receipt and review of this handbook and retain this documentation in your student file.

The Department of Medical Laboratory Sciences and Biotechnology reserves the right to amend, modify, rescind, or implement any policies, procedures, regulations, fees, conditions and courses described herein as circumstances may require without prior notice to persons who might thereby be affected. The provisions of this handbook are not and may not be regarded as contractual between or among the College, its students or its employees or agents.

Failure to read the Department of Medical Laboratory Sciences and Biotechnology Student Handbook or to sign the verification statement does not exempt the student from responsibility for, or adherence to, the standards and policies presented within this Departmental handbook, the JCHP handbook or the University Student Handbook.

NOTICE OF EQUAL OPPORTUNITY

Thomas Jefferson University is committed to providing equal educational and employment opportunities for all persons without regard to race, color, national or ethnic origin, marital status, religion, sex, sexual orientation, gender identity, age, disability, veteran's status or any other protected characteristic. The consideration of factors unrelated to a person's ability, qualifications and performance is inconsistent with this policy. Any person having inquiries or complaints concerning Thomas Jefferson University's compliance with Title VI, Title IX, the Age Discrimination Act of 1975, the Americans with Disabilities Act, or Section 504 of the Rehabilitation Act is directed to contact their Student Affairs Dean, the Title IX Coordinator, or Human Resources – Employee Relations, who have been designated by Thomas Jefferson University to coordinate the institution's efforts to comply with these laws. Any person may also contact the Assistant Secretary for Civil Rights, U.S. Department of Education, Washington, D.C. 20202, or the Director, U.S. Department of Education, Office for Civil Rights, Region Three, Philadelphia, Pennsylvania, regarding the University's compliance with the equal opportunity laws.

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WELCOME

August 19, 2024

Dear Students,

Welcome to the Department of Medical Laboratory Sciences and Biotechnology (MLSB)! We are both happy and proud that you chose Jefferson for your education and training. This fall you will be entering the disciplines of medical laboratory science, cytotechnology and biotechnology. These disciplines are academically challenging and vital to the health of patients and to research and industrial laboratories. You and your fellow students will be working together with an experienced and knowledgeable faculty. Our hope is that your educational experience will be both personally and professionally rewarding.

Now, more than ever, the community we serve relies on the expertise and innovation of essential laboratory professionals. There are many opportunities and career paths in laboratory science. You will explore a variety of laboratory practice settings as you progress through your classroom and laboratory courses to complete your professional training in our many clinical and research affiliate sites. The friendships and professional contacts you develop during your time at Jefferson can be the springboard for both personal and career advancement.

We encourage you to take full advantage of the unique resources available to you as a student here. The faculty and staff of the department are here to help you with any questions you may have, so please feel free to speak with them. Ms. Margaret Pike, administrative assistant, is also available to help you throughout your MLSB experience.

A warm welcome to you and congratulations on your admission to the Department of Medical Laboratory Sciences and Biotechnology.

Sincerely,



Barbara M. Goldsmith, Ph.D., FACB

Chair and Professor

Medical Laboratory Sciences and Biotechnology

Director, Clinical Laboratories, Point of Care and Quality Management

Department of Pathology, Anatomy and Cell Biology

Barbara.Goldsmith@jefferson.edu

215-503-8187

THE MISSION

To educate and train medical and research laboratory professionals in current and emerging technologies, professionalism, diversity, and leadership.

VISION STATEMENT

The Department of Medical Laboratory Sciences and Biotechnology desires to be the premier department for educating medical and research laboratory scientists that excel in clinical, academic, industry and research settings.

PROGRAM ACCREDITATION

The Biotechnology program is approved by the university administration. The Cytotechnology and Cell Sciences program is approved by the university administration and is fully accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) in collaboration with the American Society of Cytopathology. The Medical Laboratory Science program is approved by the university administration and is fully accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS). Graduate Certificate programs are conducted under the auspices of the Biotechnology and Medical Laboratory Science programs.

MEDICAL LABORATORY SCIENCE - is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS)

NAACLS
5600 N. RIVER ROAD SUITE 720
ROSEMONT, IL 60018-5119
847-939-3597/773-714-8880
<http://www.naacls.org>

CYTOTECHNOLOGY AND CELL SCIENCE - is accredited by the Commission on Accreditation of Allied Health Education Programs (CAAHEP) in collaboration with the American Society of Cytopathology

CAAHEP
9355 - 113th St. N, #7709
Seminole, FL 33775
727-210-2350
mail@caahep.org
www.caahep.org

If a student feels the program is not in compliance with the accreditation standards, a report must be submitted in writing to the Program Director with documentation for the concern. The Department Chair, along with the Program Director, if necessary, will review the report, with accompanying documentation, and respond to the student within 3 business days of receiving the report. If the student is not satisfied with the response, they have the right to contact the accreditation body.

CURRICULUM

PROGRAM AND DEGREE OPTIONS

The Department of Medical and Laboratory Sciences and Biotechnology offers the following degree options for Biotechnology, Cytotechnology and Cell Sciences, and Medical Laboratory Science:

- Bachelor of Science, 1-Year Option
- Bachelor of Science, 2-Year Option
- Combined Bachelor of Science and Master of Science
- Master of Science, 1-Year Option
- Master of Science, 2-Year Option
- Advanced Master of Science, 1-Year Option (Full Time)
- Advanced Master of Science, 2-Year Option (Part Time)

Online Only:

- Bachelor of Science MLT to MLS Online, 2-Year
- Bachelor of Science MLT to MLS Online, 4-Year
- Master of Science in Medical Laboratory Leadership, 3-Year

The Department of Medical Laboratory Sciences and Biotechnology offers the following graduate certificates with either in-person or online options:

- Clinical Chemistry
- Hematology
- Immunohematology (Blood Banking)
- Microbiology
- Molecular Biology

Certificate programs allow students to concentrate their studies in specific areas of clinical or research laboratory practice. Baccalaureate graduates, laboratory professionals, research technicians and junior scientists may acquire new skills or update their knowledge for continuing education or job mobility.

Program faculty advisors approve their students' course registration in Banner. During the pre-fall session, students will meet with their advisors during department-scheduled sessions for an introductory meeting and review of the upcoming semester registration. Please note, Jefferson tuition and fees apply only to the degree plan in which the student is enrolled. Any course approved in addition to the scripted degree plan or out-of-sequence with the scripted degree plan will be subject to additional tuition charges as the financial responsibility of the student.

BIOTECHNOLOGY

Program options are designed for students interested in laboratory careers in biomedical research for the pharmaceutical, biotechnology, bioprocessing or medical diagnostic industries. The program emphasizes hands-on laboratory training in various aspects of biotechnology and molecular biology including recombinant DNA technology and related techniques, molecular diagnostics, protein purification and characterization, cell and tissue culture, and systems biology. Laboratory practicums provide additional in-depth laboratory training in actual working laboratories.

CYTOTECHNOLOGY & CELL SCIENCES

Program options are designed for students interested in laboratory careers that rely on visualization, detection and diagnosis of disease at the cellular level. Students learn to locate and interpret cellular microscopic findings and correlate them with normal body functions, disease processes, and principles of medical oncology, therapeutic procedures, and patients' clinical information. Adjunct molecular and immunology-based diagnostic technologies, cellular and anatomic pathology, quantitative and qualitative cell analysis techniques, and cell preparation methods are essential for cytotechnology practice and are included in classroom, laboratory and clinical courses. Research applications and cytology quality assurance methodology are emphasized throughout the program, as are professional responsibilities and the value of cytological interpretation as part of comprehensive public health screening programs. Special note: the term cytotechnology and cytotechnologist is transitioning to cytology and cytologist. The terms are now used interchangeably.

MEDICAL LABORATORY SCIENCE

Program options prepare students for careers in a wide range of diagnostic practice settings including hospital, commercial, clinical, pharmaceutical, forensic, public health and research laboratories. Students are well prepared to move into technical, sales, marketing or product development positions. Students acquire a thorough background in the theory, principles and practice of clinical laboratory medicine, followed by the application of technical and problem-based methods to the performance of clinical laboratory tests and troubleshooting procedures during practicums. Emphasis on interpretation of automated system analyses and other measurements of health status and disease processes allow students to achieve a broad understanding of biochemical life processes.

ELIGIBILITY FOR GRADUATION

A student must fulfill the specific credit hours and course requirements for their specific degree plan in accordance with the academic standards outlined in this handbook and must meet all financial obligations to the university. Students should complete all graduation application requirements on time and must be in good academic standing within their program and achieve a cumulative grade point average of a least 2.5 for undergraduates or 3.0 for graduate students on all attempted work in their degree plan and achieve the grade *Pass* in the Comprehensive Examination course to qualify for graduation. Please note the MLSB department cumulative GPA requirements exceed minimums required for university academic standing.

Biotechnology

Bachelor of Science, One-Year Option

Fall Semester		
BT 303	Laboratory Design and Stewardship	3
BT 310	Fundamental Molecular Techniques	4
BT 405	Applied Microbial Biotechnology	3
LS 301	Molecular Biology	3
LS 304	Biochemistry	3
LS 331	Immunology	3
	Total Semester Credits	19
Spring Semester		
BT 320	Cell Culture and Expression Systems	4
BT 325	Product Development and Management	3
BT 403	Human Genetics	3
BT 406	Bioinformatics	2
BT 410	Molecular Diagnostic Techniques	4
BT 411	Protein Purification and Characterization	3
LS 440	Current Research in the Biosciences	2
	Total Semester Credits	21
Summer Semester		
BT 412	Biotechnology Practicum I	3
BT 416	Comprehensive Examination	0
BT 422	Biotechnology Practicum II	3
BT 432	Biotechnology Practicum III	3
BT 442	Biotechnology Practicum IV	3
LS 430	Laboratory Standards and Practices	3
	Total Semester Credits	15

Credits Required for Admission	70
Undergraduate Credits	55
Total Credits to Degree	125

Biotechnology

Bachelor of Science, Two-Year Option

YEAR ONE

Fall Semester		
BT 303	Laboratory Design and Stewardship	3
BT 310	Fundamental Molecular Techniques	4
BT 405	Applied Microbial Biotechnology	3
LS 301	Molecular Biology	3
LS 304	Biochemistry	3
	Total Semester Credits	16
Spring Semester		
BT 320	Cell Culture and Expression Systems	4
BT 410	Molecular Diagnostic Techniques	4
BT 411	Protein Purification and Characterization	3
LS 440	Current Research in the Biosciences	2
TBD	Program-Approved Elective	1-3
	Total Semester Credits	14-16

YEAR TWO

Fall Semester		
BT 305	Survey of Biotechnology Applications	3
BT 412	Biotechnology Practicum I	3
BT 422	Biotechnology Practicum II	3
TBD	Program-Approved Elective	2-3
LS 331	Immunology	3
LS 403	Research Design	2
LS 404*	<i>Experimental Research I (requires special approval)</i>	1
	Total Semester Credits	17-18
Spring Semester		
BT 325	Product Development and Management	3
BT 403	Human Genetics	3
BT 406	Bioinformatics	2
BT 416	Comprehensive Examination	0
BT 432	Biotechnology Practicum III	3
BT 442	Biotechnology Practicum IV	3
LS 430	Laboratory Standards and Practices	3
LS 405*	<i>Experimental Research II (requires special approval)</i>	1
	Total Semester Credits	18

*Students may engage in a two-semester wet bench research project with a selected PI in year two (LS 404 and LS 405) or take a 2-credit program-approved elective in the spring of year two. Students must meet with their faculty advisor and/or program director to determine which option best meets their educational goals. LS 404 and LS 405 are not a substitute for nor may run concurrently with practica courses.

Credits Required for Admission	55
Undergraduate Credits—Year One (minimum)	30-31
Undergraduate Credits—Year Two (minimum)	35-36
Total Credits to Degree (minimum)	121

Biotechnology

Bachelor of Science and Master of Science

YEAR ONE—UNDERGRADUATE PHASE

Fall Semester		
BT 303	Laboratory Design and Stewardship	3
BT 305	Survey of Biotechnology Applications	3
BT 310	Fundamental Molecular Techniques	4
BT 405	Applied Microbial Biotechnology	3
LS 301	Molecular Biology	3
LS 304	Biochemistry	3
	Total Semester Credits	19
Spring Semester		
BT 320	Cell Culture and Expression Systems	4
BT 403	Human Genetics	3
BT 406	Bioinformatics	2
BT 410	Molecular Diagnostic Techniques	4
BT 411	Protein Purification and Characterization	3
LS 540	Current Research in the Biosciences	3
	Total Semester Credits	19

YEAR TWO—GRADUATE PHASE

Fall Semester		
BT 812	Biotechnology Practicum I	3
BT 813	Biotechnology Practicum II	3
LS 531	Immunology	3
LS 603	Research Design	2
LS 640 or TBD	Methods in Bioscience Education or Program Approved Elective	3
<i>LS 804*</i>	<i>Experimental Research I (requires special approval)</i>	1
TBD	Program-Approved Elective	3
	Total Semester Credits	17–18
Spring Semester		
BT 525	Product Development and Management	3
BT 814	Biotechnology Practicum III	3
BT 815	Biotechnology Practicum IV	3
BT 816	Comprehensive Examination	0
LS 610	Regulatory and Fiscal Issues in Laboratory Management	3
<i>LS 803*</i>	<i>Contemporary Topics Research</i>	2
<i>or LS 805*</i>	<i>Experimental Research II (requires special approval)</i>	1
TBD	Program-Approved Elective	3
	Total Semester Credits	16–17

*To meet the research requirement, students may take a classroom literature review-based course (LS 803) or, under special circumstances, engage in a two-semester wet bench research project with a selected PI (LS 804 and LS 805). Students must meet with their faculty advisor and/or program director to determine which option best meets their educational goals. LS 804 and LS 805 are not a substitute for nor may run concurrently with practica courses.

Credits Required for Admission	82
Undergraduate Credits	38
Graduate Credits	34
Total Credits to Degree	154

Biotechnology

Master of Science, One-Year Option

Fall Semester		
BT 503	Laboratory Design and Stewardship	3
BT 510	Fundamental Molecular Techniques	4
BT 605	Applied Microbial Biotechnology	3
LS 501	Molecular Biology	3
LS 504	Biochemistry	3
LS 531	Immunology	3
LS 603	Research Design	2
	Total Semester Credits	21
Spring Semester		
BT 520	Cell Culture and Expression Systems	4
BT 525	Product Development and Management	3
BT 603	Human Genetics	3
BT 606	Bioinformatics	2
BT 610	Molecular Diagnostic Techniques	4
BT 611	Protein Purification and Characterization	3
	Total Semester Credits	19
Summer Semester		
BT 812	Biotechnology Practicum I	3
BT 813	Biotechnology Practicum II	3
BT 814	Biotechnology Practicum III	3
BT 815	Biotechnology Practicum IV	3
BT 816	Comprehensive Examination	0
LS 610	Regulatory and Fiscal Issues in Laboratory Management	3
LS 803	Contemporary Topics Research	2
	Total Semester Credits	17

Total Credits to Degree	57
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Biotechnology

Master of Science, Two-Year Option

YEAR ONE

Fall Semester		
BT 503	Laboratory Design and Stewardship	3
BT 510	Fundamental Molecular Techniques	4
BT 605	Applied Microbial Biotechnology	3
LS 501	Molecular Biology	3
LS 504	Biochemistry	3
	Total Semester Credits	16
Spring Semester		
BT 520	Cell Culture and Expression Systems	4
BT 603	Human Genetics	3
BT 606	Bioinformatics	2
BT 610	Molecular Diagnostic Techniques	4
BT 611	Protein Purification and Characterization	3
	Total Semester Credits	16

YEAR TWO

Fall Semester		
BT 812	Biotechnology Practicum I	3
BT 813	Biotechnology Practicum II	3
LS 531	Immunology	3
LS 603	Research Design	2
<i>LS 804*</i>	<i>Experimental Research I (requires special approval)</i>	<i>1</i>
	Total Semester Credits	11–12
Spring Semester		
BT 525	Product Development and Management	3
BT 814	Biotechnology Practicum III	3
BT 815	Biotechnology Practicum IV	3
BT 816	Comprehensive Examination	0
LS 610	Regulatory and Fiscal Issues in Laboratory Management	3
<i>LS 803*</i>	<i>Contemporary Topics Research</i>	<i>2</i>
<i>or LS 805*</i>	<i>Experimental Research II (requires special approval)</i>	<i>1</i>
	Total Semester Credits	13–14

*To meet the research requirement, students may take a classroom literature review-based course (LS 803) or, under special circumstances, engage in a two-semester wet bench research project with a selected PI (LS 804 and LS 805). Students must meet with their faculty advisor and/or program director to determine which option best meets their educational goals. LS 804 and LS 805 are not a substitute for nor may run concurrently with practica courses.

Total Credits to Degree	57
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Biotechnology

Advanced Master of Science, One-Year Option

Fall Semester		
BT 605	Applied Microbial Biotechnology	3
BT 812	Biotechnology Practicum I (or program-approved elective)	3
BT 813	Biotechnology Practicum II (or program-approved elective)	3
LS 504 or LS531	Biochemistry or Immunology (or program-approved elective)	3
LS 603	Research Design	2
<i>LS 804*</i>	<i>Experimental Research I (requires special approval)</i>	1
	Total Semester Credits	14–15
Spring Semester		
BT 525	Product Development and Management	3
BT 603	Human Genetics (or program-approved elective)	3
BT 606	Bioinformatics	2
BT 814	Biotechnology Practicum III (or program-approved elective)	3
BT 815	Biotechnology Practicum IV (or program-approved elective)	3
LS 610	Regulatory and Fiscal Issues in Laboratory Management (or program-approved elective)	3
<i>LS 803*</i>	<i>Contemporary Topics Research</i>	2
<i>LS 805*</i>	<i>Experimental Research II (requires special approval)</i>	1
	Total Semester Credits	18–19

*To meet the research requirement, students may take a classroom literature review-based course (LS 803) or engage in a two-semester wet bench research project with a selected PI (LS 804 and LS 805). Students must meet with their faculty advisor and/or program director to determine which option best meets their educational goals. LS 804 and LS 805 are not a substitute for nor may run concurrently with practica courses.

Total Credits to Degree	33
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Biotechnology

Advanced Master of Science, Two-Year Option

YEAR ONE

Fall Semester		
BT 605	Applied Microbial Biotechnology	3
BT 812	Biotechnology Practicum I (or program-approved elective)	3
LS 603	Research Design	2
	Total Semester Credits	8
Spring Semester		
BT 603	Human Genetics (or program-approved elective)	3
BT 813	Biotechnology Practicum II (or program-approved elective)	3
	Total Semester Credits	6
Summer Semester		
LS 610	Regulatory and Fiscal Issues in Laboratory Management (or program-approved elective)	3
BT 814	Biotechnology Practicum III (or program-approved elective)	3
	Total Semester Credits	6

YEAR TWO

Fall Semester		
BT 815	Biotechnology Practicum IV (or program-approved elective)	3
LS 504 or LS531	Biochemistry or Immunology	3
<i>LS 804*</i>	<i>Experimental Research I (requires special approval)</i>	<i>1</i>
	Total Semester Credits	6–7
Spring Semester		
BT 525	Product Development and Management	3
BT 606	Bioinformatics	2
<i>LS 803*</i>	<i>Contemporary Topics Research</i>	<i>2</i>
<i>or LS 805*</i>	<i>Experimental Research II (requires special approval)</i>	<i>1</i>
	Total Semester Credits	6–7

*To meet the research requirement, students may take a classroom literature review-based course (LS 803) or engage in a two-semester wet bench research project with a selected PI (LS 804 and LS 805). Students must meet with their faculty advisor and/or program director to determine which option best meets their educational goals. LS 804 and LS 805 are not a substitute for nor may run concurrently with practica courses.

Total Credits to Degree	33
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Biotechnology

Bachelor of Science, One-Year Option

Concentration in Biopharmaceutical Process Development

Fall Semester		
BT 303	Laboratory Design and Stewardship	3
BT 310	Fundamental Molecular Techniques	4
BT 405	Applied Microbial Biotechnology	3
LS 301	Molecular Biology	3
LS 304	Biochemistry	3
LS 331	Immunology	3
	Total Semester Credits	19
Spring Semester		
BT 320	Cell Culture and Expression Systems	4
BT 325	Product Development and Management	3
BT 403	Human Genetics	3
BT 406	Bioinformatics	2
BT 410	Molecular Diagnostic Techniques	4
BT 411	Protein Purification and Characterization	3
	Total Semester Credits	19
Summer Semester*		
BP 401	Basic Engineering for Scientists	2
BP 403	Introduction to Biopharmaceutical Processing	2
BP 404	Introduction to Downstream Unit Operations	4
BP 405	Introduction to Upstream Unit Operations	4
BT 412	Biotechnology Practicum I	3
BT 416	Comprehensive Examination	0
BT 422	Biotechnology Practicum II	3
BT 432	Biotechnology Practicum III	3
BT 442	Biotechnology Practicum IV	3
	Total Semester Credits	24

*All summer courses, including practica, are held at the Jefferson Institute for Bioprocessing (JIB).

Credits Required for Admission	70
Undergraduate Credits	62
Total Credits to Degree	132

Biotechnology

Bachelor of Science, Two-Year Option

Concentration in Biopharmaceutical Process Development

YEAR ONE

Fall Semester		
BT 303	Laboratory Design and Stewardship	3
BT 310	Fundamental Molecular Techniques	4
BT 405	Applied Microbial Biotechnology	3
LS 301	Molecular Biology	3
LS 304	Biochemistry	3
	Total Semester Credits	16
Spring Semester		
BT 320	Cell Culture and Expression Systems	4
BT 410	Molecular Diagnostic Techniques	4
BT 411	Protein Purification and Characterization	3
LS 440	Current Research in the Biosciences	2
	Total Semester Credits	13
Summer Semester*		
BP 401	Basic Engineering for Scientists	2
BP 403	Introduction to Biopharmaceutical Processing	2
BP 404	Introduction to Downstream Unit Operations	4
BP 405	Introduction to Upstream Unit Operations	4
	Total Semester Credits	12

YEAR TWO

Fall Semester		
BT 305	Survey of Biotechnology Applications	3
BT 412	Biotechnology Practicum I	3
BT 422	Biotechnology Practicum II	3
LS 331	Immunology	3
LS 403	Research Design	2
LS 404**	<i>Experimental Research I (requires special approval)</i>	1
	Total Semester Credits	14–15
Spring Semester		
BT 325	Product Development and Management	3
BT 403	Human Genetics	3
BT 406	Bioinformatics	2
BT 416	Comprehensive Examination	0
BT 432	Biotechnology Practicum III	3
BT 442	Biotechnology Practicum IV	3
LS 405**	<i>Experimental Research II (requires special approval)</i>	1
or TBD	<i>Program-approved elective</i>	2
	Total Semester Credits	15–16

*All summer courses are held at the Jefferson Institute for Bioprocessing (JIB).

**Students may engage in a two-semester wet bench research project with a selected PI in year two (LS 404 and LS 405) or take a 2-credit program-approved elective in the spring of year two. Students must meet with their faculty advisor and/or program director to determine which option best meets their educational goals. LS 404 and LS 405 are not a substitute for nor may run concurrently with practica courses.

Credits Required for Admission	55
Undergraduate Credits—Year One (minimum)	41
Undergraduate Credits—Year Two (minimum)	30
Total Credits to Degree (minimum)	126

Biotechnology
Bachelor of Science and Master of Science
Concentration in Biopharmaceutical Process Development

YEAR ONE

Fall Semester		
BT 303	Laboratory Design and Stewardship	3
BT 305	Survey of Biotechnology Applications	3
BT 310	Fundamental Molecular Techniques	4
BT 405	Applied Microbial Biotechnology	3
LS 301	Molecular Biology	3
LS 304	Biochemistry	3
	Total Semester Credits	19
Spring Semester		
BT 320	Cell Culture and Expression Systems	4
BT 403	Human Genetics	3
BT 406	Bioinformatics	2
BT 410	Molecular Diagnostic Techniques	4
BT 411	Protein Purification and Characterization	3
LS 540	Current Research in the Biosciences	3
	Total Semester Credits	19
Summer Semester*		
BP 601	Basic Engineering for Scientists	2
BP 603	Introduction to Biopharmaceutical Processing	2
BP 604	Introduction to Downstream Unit Operations	4
BP 605	Introduction to Upstream Unit Operations	4
	Total Semester Credits	12

YEAR TWO

Fall Semester		
BT 812	Biotechnology Practicum I	3
BT 813	Biotechnology Practicum II	3
LS 531	Immunology	3
LS 603	Research Design	2
LS 804**	<i>Experimental Research I (requires special approval)</i>	1
	Total Semester Credits	11-12
Spring Semester		
BT 525	Product Development and Management	3
BT 814	Biotechnology Practicum III	3
BT 815	Biotechnology Practicum IV	3
BT 816	Comprehensive Examination	0
LS 803**	<i>Contemporary Topics Research</i>	2
or LS 805**	<i>Experimental Research II (requires special approval)</i>	1
	Total Semester Credits	10-11

*All summer courses are held at the Jefferson Institute for Bioprocessing (JIB).

**To meet the research requirement, students may take a classroom literature review-based course (LS 803) or, under special circumstances, engage in a two-semester wet bench research project with a selected PI (LS 804 and LS 805). Students must meet with their faculty advisor and/or program director to determine which option best meets their educational goals. LS 804 and LS 805 are not a substitute for nor may run concurrently with practica courses.

Credits Required for Admission	82
Undergraduate Credits	38
Graduate Credits	34
Total Credits to Degree	154

Biotechnology

Master of Science, One-Year Option

Concentration in Biopharmaceutical Process Development

Fall Semester		
BT 503	Laboratory Design and Stewardship	3
BT 510	Fundamental Molecular Techniques	4
BT 605	Applied Microbial Biotechnology	3
LS 501	Molecular Biology	3
LS 504	Biochemistry	3
LS 531	Immunology	3
LS 603	Research Design	2
	Total Semester Credits	21
Spring Semester		
BT 520	Cell Culture and Expression Systems	4
BT 525	Product Development and Management	3
BT 603	Human Genetics	3
BT 606	Bioinformatics	2
BT 610	Molecular Diagnostic Techniques	4
BT 611	Protein Purification and Characterization	3
	Total Semester Credits	19
Summer Semester*		
BP 601	Basic Engineering for Scientists	2
BP 603	Introduction to Biopharmaceutical Processing	2
BP 604	Introduction to Downstream Unit Operations	4
BP 605	Introduction to Upstream Unit Operations	4
BT 812	Biotechnology Practicum I	3
BT 813	Biotechnology Practicum II	3
BT 814	Biotechnology Practicum III	3
BT 815	Biotechnology Practicum IV	3
BT 816	Comprehensive Examination	0
	Total Semester Credits	24

*All summer courses, including practica, are held at the Jefferson Institute for Bioprocessing (JIB).

Total Credits to Degree	64
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Biotechnology

Master of Science, Two-Year Option

Concentration in Biopharmaceutical Process Development

YEAR ONE

Fall Semester		
BT 503	Laboratory Design and Stewardship	3
BT 510	Fundamental Molecular Techniques	4
BT 605	Applied Microbial Biotechnology	3
LS 501	Molecular Biology	3
LS 504	Biochemistry	3
	Total Semester Credits	16
Spring Semester		
BT 520	Cell Culture and Expression Systems	4
BT 603	Human Genetics	3
BT 606	Bioinformatics	2
BT 610	Molecular Diagnostic Techniques	4
BT 611	Protein Purification and Characterization	3
	Total Semester Credits	16
Summer Semester*		
BP 601	Basic Engineering for Scientists	2
BP 603	Introduction to Biopharmaceutical Processing	2
BP 604	Introduction to Downstream Unit Operations	4
BP 605	Introduction to Upstream Unit Operations	4
	Total Semester Credits	12

YEAR TWO

Fall Semester		
BT 812	Biotechnology Practicum I	3
BT 813	Biotechnology Practicum II	3
LS 531	Immunology	3
LS 603	Research Design	2
LS 804**	<i>Experimental Research I (requires special approval)</i>	1
	Total Semester Credits	11–12
Spring Semester		
BT 525	Product Development and Management	3
BT 814	Biotechnology Practicum III	3
BT 815	Biotechnology Practicum IV	3
BT 816	Comprehensive Examination	0
LS 803**	<i>Contemporary Topics Research</i>	2
or LS 805**	<i>Experimental Research II (requires special approval)</i>	1
	Total Semester Credits	10–11

*All summer courses are held at the Jefferson Institute for Bioprocessing (JIB).

**To meet the research requirement, students may take a classroom literature review-based course (LS 803) or, under special circumstances, engage in a two-semester wet bench research project with a selected PI (LS 804 and LS 805). Students must meet with their faculty advisor and/or program director to determine which option best meets their educational goals. LS 804 and LS 805 are not a substitute for nor may run concurrently with practica courses.

Total Credits to Degree	66
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Biotechnology

Advanced Master of Science, One-Year Option

Concentration in Biopharmaceutical Process Development

Fall Semester		
BT 605	Applied Microbial Biotechnology	3
BT 812	Biotechnology Practicum I (or program-approved elective)	3
BT 813	Biotechnology Practicum II (or program-approved elective)	3
LS 603	Research Design	2
LS 804*	<i>Experimental Research I (requires special approval)</i>	1
	Total Semester Credits	11–12
Spring Semester		
BT 525	Product Development and Management	3
BT 606	Bioinformatics	2
BT 814	Biotechnology Practicum III (or program-approved elective)	3
BT 815	Biotechnology Practicum IV (or program-approved elective)	3
LS 803*	<i>Contemporary Topics Research</i>	2
LS 805*	<i>Experimental Research II (requires special approval)</i>	1
	Total Semester Credits	12–13
Summer Semester**		
BP 601	Basic Engineering for Scientists	2
BP 603	Introduction to Biopharmaceutical Processing	2
BP 604	Introduction to Downstream Unit Operations	4
BP 605	Introduction to Upstream Unit Operations	4
	Total Semester Credits	12

*To meet the research requirement, students may take a classroom literature review-based course (LS 803) or engage in a two-semester wet bench research project with a selected PI (LS 804 and LS 805). Students must meet with their faculty advisor and/or program director to determine which option best meets their educational goals. LS 804 and LS 805 are not a substitute for nor may run concurrently with practica courses.

** All summer courses are held at the Jefferson Institute for Bioprocessing (JIB).

Total Credits to Degree	36
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Biotechnology

Advanced Master of Science, Two-Year Option

Concentration in Biopharmaceutical Process Development

YEAR ONE

Fall Semester		
BT 605	Applied Microbial Biotechnology	3
BT 812	Biotechnology Practicum I (or program-approved elective)	3
	Total Semester Credits	6
Spring Semester		
BT 603	Human Genetics (or program-approved elective)	3
BT 813	Biotechnology Practicum II (or program-approved elective)	3
	Total Semester Credits	6
Summer Semester*		
LS 610	Regulatory and Fiscal Issues in Laboratory Management (or program-approved elective)	3
BP 601	Basic Engineering for Scientists	2
BP 603	Introduction to Biopharmaceutical Processing	2
	Total Semester Credits	7

YEAR TWO

Fall Semester		
BT 815	Biotechnology Practicum IV (or program-approved elective)	3
LS 603	Research Design	2
<i>LS 804**</i>	<i>Experimental Research I (requires special approval)</i>	<i>1</i>
	Total Semester Credits	5–6
Spring Semester		
BT 525	Product Development and Management	3
BT 606	Bioinformatics	2
<i>LS 803**</i>	<i>Contemporary Topics Research</i>	<i>2</i>
<i>or LS 805**</i>	<i>Experimental Research II (requires special approval)</i>	<i>1</i>
	Total Semester Credits	6–7
Summer Semester*		
BP 604	Introduction to Downstream Unit Operations	4
BP 605	Introduction to Upstream Unit Operations	4
	Total Semester Credits	8

*All summer courses with the "BP" prefix are held at the Jefferson Institute for Bioprocessing (JIB).

**To meet the research requirement, students may take a classroom literature review-based course (LS 803) or engage in a two-semester wet bench research project with a selected PI (LS 804 and LS 805). Students must meet with their faculty advisor and/or program director to determine which option best meets their educational goals. LS 804 and LS 805 are not a substitute for nor may run concurrently with practica courses.

Total Credits to Degree	39
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Cytotechnology and Cell Sciences
Bachelor of Science, One-Year Option

Fall Semester		
CT 301	Principles of Cell Analysis	2
CT 311	Cytopathology I	5
CT 312	Cytopathology I Laboratory	3.5
LS 301	Molecular Biology	3
LS 311	Functional Histology	2.5
LS 331	Immunology	3
	Total Semester Credits	19
Spring Semester		
CT 310	Cytological and Surgical Pathology Techniques	2
CT 315	Cytopathology II	5
CT 317	Cytopathology III	5.5
CT 325	Cellular, Molecular, and Immuno Diagnostics	3
LS 310	Introduction to Molecular Diagnostics	2
LS 413	Pathology	2
LS 440	Current Research in the Biosciences	2
	Total Semester Credits	21.5
Summer Semester		
CT 375	Cytotechnology Seminar	2
CT 412	Cytotechnology Practicum I	3
CT 413	Cytotechnology Practicum II	3
CT 414	Cytotechnology Practicum III	3
CT 415	Cytotechnology Practicum IV	3
CT 416	Comprehensive Examination	0
LS 430	Laboratory Standards and Practices	3
	Total Semester Credits	17

Credits Required for Admission	70
Undergraduate Credits	57.5
Total Credits to Degree (minimum)	127.5

Cytotechnology and Cell Sciences
Bachelor of Science, Two-Year Option

YEAR ONE

Fall Semester		
CT 301	Principles of Cell Analysis	2
CT 311	Cytopathology I	5
CT 312	Cytopathology I Laboratory	3.5
LS 301	Molecular Biology	3
LS 311	Functional Histology	2.5
TBD	Program-Approved Elective	3
	Total Semester Credits	19
Spring Semester		
CT 310	Cytological and Surgical Pathology Techniques	2
CT 315	Cytopathology II	5
CT 317	Cytopathology III	5.5
LS 310	Introduction to Molecular Diagnostics	2
LS 413	Pathology	2
	Total Semester Credits	16.5

YEAR TWO

Fall Semester		
CT 412	Cytotechnology Practicum I	3
CT 413	Cytotechnology Practicum II	3
LS 331	Immunology	3
TBD	Program-Approved Elective	6
	Total Semester Credits	15
Spring Semester		
CT 325*	Cellular, Molecular, and Immuno Diagnostics	3
CT 375	Cytotechnology Seminar	2
CT 414	Cytotechnology Practicum III	3
CT 415	Cytotechnology Practicum IV	3
CT 416	Comprehensive Examination	0
LS 430	Laboratory Standards and Practices	3
LS 440	Current Research in the Biosciences	2
	Total Semester Credits	16

*The laboratory portion will not take place at the date and time stated in Banner. Students must confirm the alternate schedule with their program director.

Credits Required for Admission	55
Undergraduate Credits—Year One	35.5
Undergraduate Credits—Year Two	31
Total Credits to Degree (minimum)	121.5

Cytotechnology and Cell Sciences

Bachelor of Science and Master of Science

YEAR ONE—UNDERGRADUATE PHASE

Fall Semester		
CT 301	Principles of Cell Analysis	2
CT 311	Cytopathology I	5
CT 312	Cytopathology I Laboratory	3.5
LS 301	Molecular Biology	3
LS 311	Functional Histology	2.5
LS 331	Immunology	3
TBD	Program-Approved Elective	3
	Total Semester Credits	22
Spring Semester		
CT 310	Cytological and Surgical Pathology Techniques	2
CT 315	Cytopathology II	5
CT 317	Cytopathology III	5.5
LS 310	Introduction to Molecular Diagnostics	2
LS 540	Current Research in the Biosciences	3
	Total Semester Credits	17.5

YEAR TWO—GRADUATE PHASE

Fall Semester		
CT 812	Cytotechnology Practicum I	3
CT 813	Cytotechnology Practicum II	3
LS 603	Research Design	2
LS 640	Methods in Bioscience Education	3
TBD or LS 644*	Program-Approved Elective Laboratory Education and Instruction (requires special approval)	1–4 3–4
	Total Semester Credits	12–15
Spring Semester		
CT 525**	Cellular, Molecular, and Immuno Diagnostics	3
CT 575	Cytotechnology Seminar	2
CT 814	Cytotechnology Practicum III	3
CT 815	Cytotechnology Practicum IV	3
CT 816	Comprehensive Examination	0
LS 610	Regulatory and Fiscal Issues in Laboratory Management	3
LS 613	Pathology	2
LS 803^	Contemporary Topics Research	2
	Total Semester Credits	18

*Program approval and minimum course grade requirements must be met to register for LS 644.

**The laboratory portion will not take place at the date and time stated in Banner. Students must confirm the alternate schedule with their program director.

^To meet the research requirement, students may take a classroom literature review-based course (LS 803) or, under special circumstances, engage in a two-semester wet bench research project with a selected PI (LS 804 and LS 805). Students must meet with their faculty advisor and/or program director to determine which option best meets their educational goals. LS 804 and LS 805 are not a substitute for nor may run concurrently with practica courses.

Credits Required for Admission	82
Undergraduate Credits	39.5
Graduate Credits (minimum)	30
Total Credits to Degree (minimum)	151.5

Cytotechnology and Cell Sciences
Master of Science, One-Year Option

Fall Semester		
CT 501	Principles of Cell Analysis	2
CT 511	Cytopathology I	5
CT 512	Cytopathology I Laboratory	3.5
LS 501	Molecular Biology	3
LS 511	Functional Histology	2.5
LS 531	Immunology	3
LS 603	Research Design	2
	Total Semester Credits	21
Spring Semester		
CT 510	Cytological and Surgical Pathology Techniques	2
CT 515	Cytopathology II	5
CT 517	Cytopathology III	5.5
CT 525	Cellular, Molecular, and Immuno Diagnostics	3
LS 510	Introduction to Molecular Diagnostics	2
LS 613	Pathology	2
	Total Semester Credits	19.5
Summer Semester		
CT 575	Cytotechnology Seminar	2
CT 812	Cytotechnology Practicum I	3
CT 813	Cytotechnology Practicum II	3
CT 814	Cytotechnology Practicum III	3
CT 815	Cytotechnology Practicum IV	3
CT 816	Comprehensive Examination	0
LS 610	Regulatory and Fiscal Issues in Laboratory Management	3
LS 803	Contemporary Topics Research	2
	Total Semester Credits	19

Total Credits to Degree (minimum)	59.5
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Cytotechnology and Cell Sciences
Master of Science, Two-Year Option

YEAR ONE

Fall Semester		
CT 501	Principles of Cell Analysis	2
CT 511	Cytopathology I	5
CT 512	Cytopathology I Laboratory	3.5
LS 501	Molecular Biology	3
LS 511	Functional Histology	2.5
	Total Semester Credits	16
Spring Semester		
CT 510	Cytological and Surgical Pathology Techniques	2
CT 515	Cytopathology II	5
CT 517	Cytopathology III	5.5
LS 510	Introduction to Molecular Diagnostics	2
LS 613	Pathology	2
	Total Semester Credits	16.5

YEAR TWO

Fall Semester		
CT 812	Cytotechnology Practicum I	3
CT 813	Cytotechnology Practicum II	3
LS 531	Immunology	3
LS 603	Research Design	2
LS 804*	<i>Experimental Research I (requires special approval)</i>	1
	Total Semester Credits	11–12
Spring Semester		
CT 525**	Cellular, Molecular, and Immuno Diagnostics	3
CT 575	Cytotechnology Seminar	2
CT 814	Cytotechnology Practicum III	3
CT 815	Cytotechnology Practicum IV	3
CT 816	Comprehensive Examination	0
LS 610	Regulatory and Fiscal Issues in Laboratory Management	3
LS 803*	<i>Contemporary Topics Research</i>	2
or LS 805*	<i>Experimental Research II (requires special approval)</i>	1
	Total Semester Credits	15–16

*To meet the research requirement, students may take a classroom literature review-based course (LS 803) or, under special circumstances, engage in a two-semester wet bench research project with a selected PI (LS 804 and LS 805). Students must meet with their faculty advisor and/or program director to determine which option best meets their educational goals. LS 804 and LS 805 are not a substitute for nor may run concurrently with practica courses.

**The laboratory portion will not take place at the date and time stated in Banner. Students must confirm the alternate schedule with their program director.

Total Credits to Degree (minimum)	59.5
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Medical Laboratory Science
Bachelor of Science, One-Year Option

Fall Semester		
LS 301	Molecular Biology	3
LS 331	Immunology	3
MLS 300	Introduction to Medical Laboratory Science	1
MLS 312	Clinical Microbiology I	4
MLS 323	Clinical Chemistry I	3.5
MLS 341	Clinical Hematology I	3
MLS 351	Immunochemistry I	3
	Total Semester Credits	20.5
Spring Semester		
LS 310	Introduction to Molecular Diagnostics	2
LS 440	Current Research in the Biosciences	2
MLS 313	Clinical Microbiology II	3.5
MLS 324	Clinical Chemistry II	3
MLS 343	Clinical Hematology II	3
MLS 352	Immunochemistry II	3
MLS 376	Urinalysis and Body Fluids	3
	Total Semester Credits	19.5
Summer Semester		
LS 430	Laboratory Standards and Practices	3
MLS 412	Medical Laboratory Science Practicum I	3
MLS 416	Comprehensive Examination	0
MLS 422	Medical Laboratory Science Practicum II	3
MLS 442	Medical Laboratory Science Practicum III	3
MLS 454	Medical Laboratory Science Practicum IV	3
	Total Semester Credits	15

Credits Required for Admission	70
Undergraduate Credits	55
Total Credits to Degree (minimum)	125

Medical Laboratory Science
Bachelor of Science, Two-Year Option

YEAR ONE

Fall Semester		
LS 301	Molecular Biology	3
LS 331	Immunology	3
MLS 300	Introduction to Medical Laboratory Science	1
MLS 312	Clinical Microbiology I	4
MLS 323	Clinical Chemistry I	3.5
MLS 341	Clinical Hematology I	3
MLS 351	Immunochemistry I	3
	Total Semester Credits	20.5
Spring Semester		
LS 310	Introduction to Molecular Diagnostics	2
MLS 313	Clinical Microbiology II	3.5
MLS 324	Clinical Chemistry II	3
MLS 343	Clinical Hematology II	3
MLS 352	Immunochemistry II	3
MLS 376	Urinalysis and Body Fluids	3
	Total Semester Credits	17.5

YEAR TWO

Fall Semester		
MLS 412	Medical Laboratory Science Practicum I	3
MLS 422	Medical Laboratory Science Practicum II	3
MLSO 403	MLSO 403 Human Genetics or LS 311 Functional Histology	2.5-3
MLSO 378	Infection Prevention and Control	3
	Total Semester Credits	11.5-12
Spring Semester		
LS 430	Laboratory Standards and Practices	3
LS 440	Current Research in the Biosciences	2
MLS 375	Medical Laboratory Science Seminar	2
MLS 416	Comprehensive Examination	0
MLS 442	Medical Laboratory Science Practicum III	3
MLS 454	Medical Laboratory Science Practicum IV	3
MLSO 377	Laboratory Informatics Fundamentals	3
	Total Semester Credits	16

Credits Required for Admission	55
Undergraduate Credits—Year One	38
Undergraduate Credits—Year Two	27.5-28
Total Credits to Degree (minimum)	120.5-121

Medical Laboratory Science

Bachelor of Science, MLT to MLS Pathway, Two-Year Option

YEAR ONE

Fall Semester		
MLSO 301	Molecular Biology	3
MLSO 323	Clinical Chemistry I	2
MLSO 341	Clinical Hematology I	2
	Total Semester Credits	7
Spring Semester		
MLSO 310	Introduction to Molecular Diagnostics	1
MLSO 324	Clinical Chemistry II	2
MLSO 343	Clinical Hematology II	2
	Total Semester Credits	5
Summer Semester		
MLSO 376	Urinalysis and Body Fluids	2
MLSO 430	Laboratory Standards and Practices	3
MLSO 377	Laboratory Informatics Fundamentals	3
	Total Semester Credits	8

YEAR TWO

Fall Semester		
MLSO 312	Clinical Microbiology I	2
MLSO 331	Immunology	2
MLSO 351	Immunochemistry I	2
	Total Semester Credits	6
Spring Semester		
MLSO 313	Clinical Microbiology II	2
MLSO 352	Immunochemistry II	2
MLSO 378	Infection Prevention and Control	3
	Total Semester Credits	7
Summer Semester		
MLSO 375	Medical Laboratory Science Seminar	2
MLSO 412	Medical Laboratory Science Practicum I	1
MLSO 416	Comprehensive Examination	0
MLSO 422	Medical Laboratory Science Practicum II	1
MLSO 442	Medical Laboratory Science Practicum III	1
MLSO 454	Medical Laboratory Science Practicum IV	1
MLSO 379	Special Topics in MLS or Program-Approved Elective	2-3
	Total Semester Credits	8-9

Credits Required for Admission	79* (up to 80 transfer credits accepted)
Undergraduate Credits	41*
Total Credits to Degree (minimum)	120

*If at least 79 credits are not transferred at admission, students must complete elective coursework to satisfy the degree requirement of 120 credit hours.

Medical Laboratory Science

Bachelor of Science, MLT to MLS Pathway, Four-Year Option

YEAR ONE

Fall Semester		
MLSO 323	Clinical Chemistry I	2
MLSO 341	Clinical Hematology I	2
	Total Semester Credits	4
Spring Semester		
MLSO 324	Clinical Chemistry II	2
MLSO 343	Clinical Hematology II	2
	Total Semester Credits	4
Summer Semester		
MLSO 430	Laboratory Standards and Practices	3
	Total Semester Credits	3

YEAR TWO

Fall Semester		
MLSO 301	Molecular Biology	3
MLSO 312	Clinical Microbiology I	2
	Total Semester Credits	5
Spring Semester		
MLSO 310	Introduction to Molecular Diagnostics	1
MLSO 313	Clinical Microbiology II	2
	Total Semester Credits	3
Summer Semester		
MLSO 376	Urinalysis and Body Fluids	2
	Total Semester Credits	2

YEAR THREE

Fall Semester		
MLSO 331	Immunology	2
MLSO 351	Immunochemistry I	2
	Total Semester Credits	4
Spring Semester		
MLSO 352	Immunochemistry II	2
MLSO 377	Laboratory Informatics Fundamentals	3
	Total Semester Credits	5
Summer Semester		
MLSO 379	Special Topics in MLS or Program Approved Elective	2-3
	Total Semester Credits	2-3

YEAR FOUR

Fall Semester		
MLSO 412	Medical Laboratory Science Practicum I	1
MLSO 422	Medical Laboratory Science Practicum II	1
MLSO 378	Infection Prevention and Control	3
	Total Semester Credits	5
Spring Semester		
MLSO 375	Medical Laboratory Science Seminar	2
MLSO 416	Comprehensive Examination	0
MLSO 442	Medical Laboratory Science Practicum III	1
MLSO 454	Medical Laboratory Science Practicum IV	1
	Total Semester Credits	4

Credits Required for Admission	79* (up to 80 transfer credits accepted)
Undergraduate Credits	41-42*
Total Credits to Degree (minimum)	120-121

*If at least 79 credits are not transferred at admission, students must complete elective coursework to satisfy the degree requirement of 120 credit hours.

Medical Laboratory Science
Bachelor of Science and Master of Science

YEAR ONE—UNDERGRADUATE PHASE

Fall Semester		
LS 301	Molecular Biology	3
LS 331	Immunology	3
MLS 300	Introduction to Medical Laboratory Science	1
MLS 312	Clinical Microbiology I	4
MLS 323	Clinical Chemistry I	3.5
MLS 341	Clinical Hematology I	3
MLS 351	Immunochemistry I	3
	Total Semester Credits	20.5
Spring Semester		
LS 310	Introduction to Molecular Diagnostics	2
LS 540	Current Research in the Biosciences	3
MLS 313	Clinical Microbiology II	3.5
MLS 324	Clinical Chemistry II	3
MLS 343	Clinical Hematology II	3
MLS 352	Immunochemistry II	3
MLS 376	Urinalysis and Body Fluids	3
	Total Semester Credits	20.5

YEAR TWO—GRADUATE PHASE

Fall Semester		
LS 603	Research Design	2
LS 640	Methods in Bioscience Education	3
MLS 812	Medical Laboratory Science Practicum I	3
MLS 813	Medical Laboratory Science Practicum II	3
LS 644	Laboratory Education and Instruction	3
	Total Semester Credits	14
Spring Semester		
LS 610	Regulatory and Fiscal Issues in Laboratory Management	3
LS 803*	Contemporary Topics Research	2
MLS 575	Medical Laboratory Science Seminar	2
MLS 814	Medical Laboratory Science Practicum III	3
MLS 815	Medical Laboratory Science Practicum IV	3
MLS 816	Comprehensive Examination	0
	MLSO 577 Laboratory Informatics Fundamentals or LS 698 Special Topics in Laboratory Instruction	3
	Total Semester Credits	16

*To meet the research requirement, students may take a classroom literature review-based course (LS 803) or, under special circumstances, engage in a two-semester wet bench research project with a selected PI (LS 804 and LS 805). Students must meet with their faculty advisor and/or program director to determine which option best meets their educational goals. LS 804 and LS 805 are not a substitute for nor may run concurrently with practica courses.

Credits Required for Admission	82
Undergraduate Credits	41
Graduate Credits (minimum)	30
Total Credits to Degree (minimum)	153

Medical Laboratory Science
Master of Science, One-Year Option

Fall Semester		
LS 501	Molecular Biology	3
LS 531	Immunology	3
LS 603	Research Design	2
MLS 500	Introduction to Medical Laboratory Science	1
MLS 512	Clinical Microbiology I	4
MLS 523	Clinical Chemistry I	3.5
MLS 541	Clinical Hematology I	3
MLS 551	Immunochemistry I	3
	Total Semester Credits	22.5
Spring Semester		
LS 510	Introduction to Molecular Diagnostics	2
MLS 513	Clinical Microbiology II	3.5
MLS 524	Clinical Chemistry II	3
MLS 543	Clinical Hematology II	3
MLS 552	Immunochemistry II	3
MLS 576	Urinalysis and Body Fluids	3
	Total Semester Credits	17.5
Summer Semester		
LS 610	Regulatory and Fiscal Issues in Laboratory Management	3
LS 803	Contemporary Topics Research	2
MLS 812	Medical Laboratory Science Practicum I	3
MLS 813	Medical Laboratory Science Practicum II	3
MLS 814	Medical Laboratory Science Practicum III	3
MLS 815	Medical Laboratory Science Practicum IV	3
MLS 816	Comprehensive Examination	0
	Total Semester Credits	17

Total Credits to Degree (minimum)	57
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Medical Laboratory Science
Master of Science, Two-Year Option

YEAR ONE

Fall Semester		
LS 531	Immunology	3
MLS 500	Introduction to Medical Laboratory Science	1
MLS 512	Clinical Microbiology I	4
MLS 523	Clinical Chemistry I	3.5
MLS 541	Clinical Hematology I	3
MLS 551	Immunochemistry I	3
	Total Semester Credits	17.5
Spring Semester		
MLS 513	Clinical Microbiology II	3.5
MLS 524	Clinical Chemistry II	3
MLS 543	Clinical Hematology II	3
MLS 552	Immunochemistry II	3
MLS 576	Urinalysis and Body Fluids	3
	Total Semester Credits	15.5

YEAR TWO

Fall Semester		
LS 501	Molecular Biology	3
LS 603	Research Design	2
MLS 812	Medical Laboratory Science Practicum I	3
MLS 813	Medical Laboratory Science Practicum II	3
	Total Semester Credits	11
Spring Semester		
LS 510	Introduction to Molecular Diagnostics	2
LS 610	Regulatory and Fiscal Issues in Laboratory Management	3
LS 803*	Contemporary Topics Research	2
MLS 575	Medical Laboratory Science Seminar	2
MLS 814	Medical Laboratory Science Practicum III	3
MLS 815	Medical Laboratory Science Practicum IV	3
MLS 816	Comprehensive Examination	0
	Total Semester Credits	15

*To meet the research requirement, students may take a classroom literature review-based course (LS 803) or, under special circumstances, engage in a two-semester wet bench research project with a selected PI (LS 804 and LS 805). Students must meet with their faculty advisor and/or program director to determine which option best meets their educational goals. LS 804 and LS 805 are not a substitute for nor may run concurrently with practica courses.

Total Credits to Degree (minimum)	59
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Cytotechnology and Cell Sciences & Medical Laboratory Science

Advanced Master of Science, One-Year Option

Fall Semester		
LS 504	Biochemistry (MLS program only)	3
LS 531*	Immunology (CT program only)	3
LS 603	Research Design	2
LS 640	Methods in Bioscience Education	3
<i>LS 804**</i>	<i>Experimental Research I (optional course-requires special approval)</i>	1
TBD	Program-Approved Elective	8–9
	Total Semester Credits	16–18
Spring Semester		
LS 610	Regulatory and Fiscal Issues in Laboratory Management	3
LS 613	Pathology	2
<i>LS 803**</i>	<i>Contemporary Topics Research</i>	2
<i>or LS 805**</i>	<i>Experimental Research II (optional course-requires special approval)</i>	1
TBD	Program-Approved Elective	8
	Total Semester Credits	13–14

*To meet entry-level competency requirements for immunology credits, students entering as certified cytotechnology graduates who have not completed three credits in immunology are required to enroll in LS 531 Immunology. Certified cytotechnology graduates who have completed three credits of immunology may enroll in a program-approved elective.

**To meet the research requirement, students may take a classroom literature review-based course (LS 803) or, under special circumstances, engage in a two-semester wet bench research project with a selected PI (LS 804 and LS 805). Students must meet with their faculty advisor and/or program director to determine which option best meets their educational goals. LS 804 and LS 805 are not a substitute for nor may run concurrently with practica courses.

Total Credits to Degree (minimum)	31-32
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Cytotechnology and Cell Sciences & Medical Laboratory Science

Advanced Master of Science, Two-Year Option

YEAR ONE

Fall Semester		
LS 603	Research Design	2
LS 640	Methods in Bioscience Education	3
TBD	Program-Approved Elective	3
	Total Semester Credits	8
Spring Semester		
TBD	Program-Approved Elective	4–8
	Total Semester Credits	4–8
Summer Semester		
LS 610	Regulatory and Fiscal Issues in Laboratory Management	3
TBD	Program Approved Elective	3
	Total Semester Credits	6

YEAR TWO

Fall Semester		
LS 504	Biochemistry (MLS program only)	3
LS 531*	Immunology (CT program only)	3
<i>LS 804**</i>	<i>Experimental Research I (optional course-requires special approval)</i>	1
TBD	Program-Approved Elective	3
	Total Semester Credits	6–7
Spring Semester		
LS 613	Pathology	2
<i>LS 803**</i>	<i>Contemporary Topics Research</i>	2
<i>or LS 805**</i>	<i>Experimental Research II (requires special approval)</i>	1
TBD	Program Approved Elective	3–4
	Total Semester Credits	6–8

*To meet entry-level competency requirements for immunology credits, students entering as certified cytotechnology graduates who have not completed three credits in immunology are required to enroll in LS 531 Immunology. Certified cytotechnology graduates who have completed three credits of immunology may enroll in a program-approved elective.

**To meet the research requirement, students may take a classroom literature review-based course (LS 803) or, under special circumstances, engage in a two-semester wet bench research project with a selected PI (LS 804 and LS 805). Students must meet with their faculty advisor and/or program director to determine which option best meets their educational goals. LS 804 and LS 805 are not a substitute for nor may run concurrently with practica courses.

Total Credits to Degree (minimum)	30
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Clinical Chemistry Graduate Certificate

Traditional Pathway

Fall Semester		
MLS 523	Clinical Chemistry I	3.5
	Total Semester Credits	3.5
Spring Semester		
MLS 524	Clinical Chemistry II	3
	Total Semester Credits	3
Summer Semester		
LS 610	Regulatory and Fiscal Issues in Laboratory Management	3
MLS 812	Medical Laboratory Science Practicum I (Clinical Chemistry)	3
	Total Semester Credits	6

Total Credits to Certificate (minimum)	12.5
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Clinical Chemistry Graduate Certificate

Online Pathway

Fall Semester		
MLSO 523	Clinical Chemistry I	2.5
	Total Semester Credits	2.5
Spring Semester		
MLSO 524	Clinical Chemistry II	2.5
	Total Semester Credits	2.5
Summer Semester		
MLSO 610	Regulatory and Fiscal Issues in Laboratory Management	3
MLSO 812	Medical Laboratory Science Practicum I (Clinical Chemistry)	1
	Total Semester Credits	4

Total Credits to Certificate (minimum)	9
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***Redundant courses for stacking certificates can be substituted with program approved electives. Students who will pursue the MS in Medical Laboratory Leadership should contact their advisor.**

Clinical Hematology Graduate Certificate

Traditional Pathway

Fall Semester		
MLS 541	Clinical Hematology I	3
	Total Semester Credits	3
Spring Semester		
LS 510	Introduction to Molecular Diagnostics	2
MLS 543	Clinical Hematology II	3
	Total Semester Credits	5
Summer Semester		
LS 610	Regulatory and Fiscal Issues in Laboratory Management	3
MLS 812	Medical Laboratory Science Practicum I (Clinical Hematology)	3
	Total Semester Credits	6

Total Credits to Certificate (minimum)	14
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Clinical Hematology Graduate Certificate

Online Pathway

Fall Semester		
MLSO 541	Clinical Hematology I	2
	Total Semester Credits	2
Spring Semester		
MLSO 510	Introduction to Molecular Diagnostics	1
MLSO 543	Clinical Hematology II	2
	Total Semester Credits	3
Summer Semester		
MLSO 610	Regulatory and Fiscal Issues in Laboratory Management	3
MLSO 814	Medical Laboratory Science Practicum I (Clinical Hematology)	1
	Total Semester Credits	4

Total Credits to Certificate (minimum)	9
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***Redundant courses for stacking certificates can be substituted with program approved electives. Students who will pursue the MS in Medical Laboratory Leadership should contact their advisor.**

Clinical Microbiology Graduate Certificate

Traditional Pathway

Fall Semester		
MLS 512	Clinical Microbiology I	4.0
	Total Semester Credits	4.0
Spring Semester		
LS 510	Introduction to Molecular Diagnostics	2
MLS 513	Clinical Microbiology II	3.5
	Total Semester Credits	5.5
Summer Semester		
LS 610	Regulatory and Fiscal Issues in Laboratory Management	3
MLS 812	Medical Laboratory Science Practicum I (Clinical Microbiology)	3
	Total Semester Credits	6

Total Credits to Certificate (minimum)	15.5
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Clinical Microbiology Graduate Certificate

Online Pathway

Fall Semester		
MLSO 512	Clinical Microbiology I	2
	Total Semester Credits	2
Spring Semester		
MLSO 510	Introduction to Molecular Diagnostics	1
MLSO 513	Clinical Microbiology II	2
	Total Semester Credits	3
Summer Semester		
MLSO 610	Regulatory and Fiscal Issues in Laboratory Management	3
MLSO 813	Medical Laboratory Science Practicum I (Clinical Microbiology)	1
	Total Semester Credits	4

Total Credits to Certificate (minimum)	9
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***Redundant courses for stacking certificates can be substituted with program approved electives. Students who will pursue the MS in Medical Laboratory Leadership should contact their advisor.**

Immunoematology Graduate Certificate

Traditional Pathway

Fall Semester		
LS 531	Immunology	3
MLS 551	Immunoematology I	3
	Total Semester Credits	6
Spring Semester		
MLS 552	Immunoematology II	3
	Total Semester Credits	3
Summer Semester		
LS 610	Regulatory and Fiscal Issues in Laboratory Management	3
MLS 812	Medical Laboratory Science Practicum I (Immunoematology)	3
	Total Semester Credits	6

Total Credits to Certificate (minimum)	15
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Immunoematology Graduate Certificate

Online Pathway

Fall Semester		
MLSO 531	Immunology	2
MLSO 551	Immunoematology I	2
	Total Semester Credits	4
Spring Semester		
MLSO 552	Immunoematology II	2
	Total Semester Credits	2
Summer Semester		
MLSO 610	Regulatory and Fiscal Issues in Laboratory Management	3
MLSO 815	Medical Laboratory Science Practicum I (Immunoematology)	1
	Total Semester Credits	4

Total Credits to Certificate (minimum)	10
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***Redundant courses for stacking certificates can be substituted with program approved electives. Students who will pursue the MS in Medical Laboratory Leadership should contact their advisor.**

Molecular Biology Graduate Certificate

Traditional Pathway

Fall Semester		
MLSO 603	Human Genetics	3
	Total Semester Credits	3
Spring Semester		
BT 606	Bioinformatics	2
BT 610	Molecular Diagnostic Techniques	4
	Total Semester Credits	6
Summer Semester		
BT 812	Biotechnology Practicum I	3
LS 610	Regulatory and Fiscal Issues in Laboratory Management	3
	Total Semester Credits	6

Total Credits to Certificate (minimum)	15
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Molecular Biology Graduate Certificate

Online Pathway

Fall Semester		
MLSO 603	Human Genetics	3
	Total Semester Credits	3
Spring Semester		
MLSO 606	Bioinformatics	2
MLSO 611	Molecular Diagnostic Techniques	2
	Total Semester Credits	4
Summer Semester		
MLSO 610	Regulatory and Fiscal Issues in Laboratory Management	3
MLSO 816	Medical Laboratory Science Practicum I (Molecular Diagnostics)	1
	Total Semester Credits	4

Total Credits to Certificate (minimum)	11
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***Redundant courses for stacking certificates can be substituted with program approved electives. Students who will pursue the MS in Medical Laboratory Leadership should contact their advisor.**

Medical Laboratory Science

Master of Science in Medical Laboratory Leadership

Program Outline

- Stack 3 out 5 Certificates
- Leadership credits: 9
- Capstone Course in Leadership: 1-3
- Total Program Credits: **Min 30**

Program Description

The MLSB Master of Science in Medical Laboratory Leadership (Online) curriculum consists of 30 credits presented online: 20 core credits, 9 Leadership credits, and 1 capstone in leadership credit. Course selection will be guided by an advisor who will assist in aligning courses with the core competencies of the student's target career. Sample degree plan:

YEAR ONE

Fall Semester		
MLSO 523	Clinical Chemistry I	2.5
	Total Semester Credits	2.5
Spring Semester		
MLSO 524	Clinical Chemistry II	2.5
	Total Semester Credits	2.5
Summer Semester		
MLSO 610	Regulatory and Fiscal Issues in Laboratory Management	3
MLSO 812	Medical Laboratory Science Practicum I (Clinical Chemistry)	1
*	<i>Or Required Elective</i>	3
	Total Semester Credits	4-6

YEAR TWO

Fall Semester		
MLSO 541	Clinical Hematology I	2
	Total Semester Credits	2
Spring Semester		
MLSO 510	Introduction to Molecular Diagnostics	1
MLSO 543	Clinical Hematology II	2
	Total Semester Credits	3
Summer Semester		
MLSO 576	Urinalysis and Body Fluids	2
MLSO 814	Medical Laboratory Science Practicum I (Clinical Hematology)	1
MLSO 577	Laboratory Informatics Analytics	3
	Total Semester Credits	6

YEAR THREE

Fall Semester		
MLSO 512	Clinical Microbiology I	2
LDSP 510	Team Dynamics and Collaboration	3
	Total Semester Credits	5
Spring Semester		
MLSO 513	Clinical Microbiology II	2
	Total Semester Credits	2
Summer Semester		
MLSO 579	Leadership Capstone	1
MLSO 813	Medical Laboratory Science Practicum I (Clinical Microbiology)	1
*	Or required elective	1-3
	Total Semester Credits	3-4

*The degree plan is personalized and flexible for the student's target career. For conferral of MS degree in Medical Laboratory Leadership, a minimum 30 credits is required. Practicums and electives will be determined through consultation between the advisor and the student.

Total Credits to Degree (minimum)	30-33
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Student Responsibilities

REQUIRED BACKGROUND CHECKS

Students admitted to Jefferson are required to pass a criminal background check and child abuse clearance for matriculation. Failure to be in compliance with these pre-matriculation requirements may result in denial of access to Canvas and/or restriction from new registrations. If a discrepancy is discovered in a background check that differs from what was reported for pre-matriculation, the department reserves the right to rescind its offer of admission. Some clinical partners of Jefferson require students to obtain FBI fingerprint clearances and a recent negative drug screen in order to attend practicum. It is the responsibility of the student to obtain the requested drug screen and criminal background clearances with satisfactory outcomes within the timeframe specified by the practicum coordinator. Practicum sites that require any clearances including a criminal background check, child abuse clearance, a negative drug screen and fingerprint clearances, may deny a student's participation in the practicum because of a felony or misdemeanor conviction or a record of child abuse. Please note, clinical sites may require additional health clearances, criminal background checks and drug testing *more recent* than those submitted for matriculation into the program. This especially applies to returning second-year students starting practicum in the fall semester. Drug screening or criminal clearance requirements are the financial responsibility of the student and will not be covered by the University or the Department of Medical Laboratory Sciences and Biotechnology. Jefferson Occupational Health Network for Employees and Students (JOHN) provides services for drug screening by appointment only. Please note, your practicum coordinator will advise you on the requirements specific to your practicum schedule.

Clinical sites may deny participation in clinical experiences for other reasons, including but not limited to failure of a required drug screen, criminal background check or inability to produce an appropriate health clearance. As participation in practicum courses is a required part of the curriculum and a requirement for graduation, denial of participation by a clinical site may result in delay of graduation or the inability to graduate from the program.

HEALTH REQUIREMENTS

While in attendance as a student, the Department of Medical Laboratory Sciences and Biotechnology requires that you keep your immunizations up to date. All students must have proof of their immunizations, a recent TB clearance and the annual Flu vaccine prior to matriculation with Thomas Jefferson University and JCHP and must update these immunizations every academic year while in the program. Please note clinical sites may require additional health clearances to be completed within a specified timeframe prior to the practicum start date. Jefferson Occupational Health Network for Employees and Students (JOHN) provides services for vaccinations and other health clearances by appointment only.

Clinical rotation and fieldwork sites may require proof of prior immunization, proof of immunity as well as additional immunizations not required by the university or program, and may deny a student's participation in the practicum experience because of incomplete immunizations. Please refer to the university [COVID-19 Vaccination Policy](#) for the most up to date university requirements for students. Additional immunizations may be obtained from a student's primary care physician or by JOHN but are the financial responsibility of the student and will not be covered by the University or the Department of Medical Laboratory Sciences and Biotechnology.

All persons must be in compliance with the most current university health and safety mandates which may be issued and/or revised at any time throughout the academic year.

DISABILITY ACCOMMODATIONS

Thomas Jefferson University is committed to providing equal education opportunities to all students, including students with disabilities, in accordance with section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act. Thomas Jefferson University will provide reasonable accommodations to all qualified individuals with disabilities to allow equal access and full participation to all University sponsored activities and programs. Students are responsible to initiate the request for academic accommodations with the [Office of Academic & Career Success](#) and to provide all necessary documentation. The procedure for requesting an accommodation may be found on the [Office of Academic & Career Success webpage](#) or a student may contact TJU_CC_AccessibilityServices@Jefferson.edu to address any initial questions they might have and arrange a meeting if needed. The letter for academic accommodations must be copied and submitted by the student to all applicable instructors. For accommodations regarding Exemplify-based assessments, a copy of the letter must be received by the ExamSoft administrator of the Academic Commons.

ELIGIBILITY FOR CERTIFICATION

The Department of Medical Laboratory Sciences and Biotechnology faculty strongly encourage program students who graduate to sit for their respective certification examinations within 90 days of graduation. Refer to the [American Society for Clinical Pathology](#) (ASCP) website for specific deadlines for eligibility. Please note that academic transcripts required for Board of Certification (BOC) registration will not be released by the Registrar before graduation or if there are any outstanding debts to the university. For purposes of ASCP BOC registration, consult with your program director for the specific program end date. **Please note that Advanced Master of Science¹ program graduates are not eligible to sit for ASCP certification examinations using this degree from Thomas Jefferson University for route-one eligibility for the exam.**

With additional laboratory work experience, biotechnology graduates are eligible for the Technologist in Molecular Biology examination offered through the American Society for Clinical Pathology Board of Certification (ASCP BOC). Successful examinees may use MB(ASCP)^{CM} as credentials.

Entry-level cytotechnology graduates are eligible for the cytologist examination offered through the ASCP BOC. Successful examinees may use CT(ASCP)^{CM} as credentials. Only entry-level MS in Cytotechnology are eligible for both the cytologist and specialist in cytology ASCP examinations. Specialists in cytology will use SCT(ASCP)^{CM} as credentials.

Medical laboratory science graduates (excluding Advanced-MS degree option graduates) are eligible for the Medical Laboratory Scientist examination offered through the ASCP BOC. Successful examinees may use MLS(ASCP)^{CM} as credentials.

¹ Advanced Master of Science graduates in the Cytotechnology or the Medical Laboratory Science programs are not eligible to sit for the ASCP BOC examinations (CT, SCT or MLS) using the Thomas Jefferson University program code for Route-1 or Route-3 (Specialist in Cytology) eligibility. This is due to the fact that the Advanced Master of Science curriculum does not pertain to entry-level competencies.

Cytotechnology and medical laboratory science graduates are eligible for the Route-1 Technologist in Molecular Biology examination upon passing the CT, or MLS certification exam. Successful examinees may add MB(ASCP)^{CM} to their credentials.

Individuals who complete a graduate certificate program are eligible for categorical certification as a technologist in their respective laboratory discipline. Certification is offered through the ASCP BOC. Once certified, individuals may use these designations as credentials: C(ASCP)^{CM} for Clinical Chemistry; BB(ASCP)^{CM} for Blood Banking; M(ASCP)^{CM} for Microbiology; and H(ASCP)^{CM} for Hematology.

OVERALL DRESS CODE

Students are always required to practice good personal hygiene and present a professional appearance, for both in-person and on-line instruction. Professional attire and appearance will further apply to visible tattoos, virtual backgrounds displayed in web-conferencing sessions and face masks worn on campus. As students of laboratory professions, students should be prepared for laboratory instruction or laboratory practica with appropriate laboratory attire including proper leg coverings (no skin exposed) and footwear (non-porous, closed-toe, non-slip). Personal fragrances, such as perfume, cologne, or scented lotion, are not appropriate for the laboratory or clinical environment. Hair or beards of a length that could potentially fall forward or pose a risk of contamination must be safely secured back. PLEASE NOTE: students requiring N95 masks as PPE for practicum courses must be clean shaven in the area of the mask fitting. Required PPE will be provided for the student for laboratory instruction; however, it is the financial responsibility of the student to obtain appropriate shoes and personal wardrobe items. Please note that while completing practicum courses, the dress code as defined by the practicum site may supersede that of the department.

- Unprofessional attire or virtual backgrounds include but are not limited to garments, masks, visible tattoos or images with offensive, controversial or otherwise unprofessional sayings, slogans or pictures (Refer to Departmental Communication Policy)
- Unacceptable laboratory attire includes but is not limited to shorts, capris, pants with ripped openings, open shoes, bare or exposed ankles/legs/feet, excessively long/loose sleeves, long loose hair, and long or artificial nails. In summary, clothing items that do not provide adequate bodily coverage, anti-slip protection or that may pose a potential hazard in and of itself are considered unacceptable.

Proper Laboratory attire includes: Personal protective equipment provided to you, long pants (or long dresses/skirts with opaque (thick) leggings) and closed-toe shoes which cover the whole foot; fingernails kept trimmed; long hair and beards secured back so that it is away from the face and the workspace.

ON-LINE COURSE PRESENCE

Interpersonal communication, including online interactions, play an important role in establishing relationships and professional conduct. Students are expected to attend web-conferenced sessions with their camera on. To maintain the privacy of both instructors and students in their home or other setting, virtual backgrounds that are professional and in keeping with the standards set in the departmental dress code are welcome. Department-issued iPads are compatible with camera and virtual background system requirements. Also, be aware that devices with working camera capabilities will be required for assessments that are proctored. If you have concerns about attending

course or presentation sessions with camera on, please contact your course instructor. Additional circumstances will be considered.

Student Opportunities

PROFESSIONAL ORGANIZATIONS/NETWORKS/HONOR SOCIETIES

A variety of specialty, subspecialty science and professional societies offer membership to students. Examples of some of the many professional societies which students are eligible for membership include:

- Association for the Advancement of Blood and Biotherapies (AABB)
- American Association for Clinical Chemistry (AACC)
- American Society for Biochemistry and Molecular Biology (ASBMB)
- American Society of Cytotechnology (ASCT)
- American Society of Cytopathology (ASC)
- American Society for Clinical Laboratory Science (ASCLS)
- American Society for Clinical Pathology (ASCP)
- American Society of Hematology (ASH)
- American Society of Human Genetics (ASHG)
- American Society of Microbiology (ASM)
- Biotechnology Industry Organization (BIO)
- Genetics Society of America (GSA)
- Pennsylvania Biotechnology Association (PBA)
- Sigma Xi

Department of Medical Laboratory Sciences and Biotechnology Policies

STATEMENT OF PROFESSIONAL CONDUCT

As Jefferson students and faculty, we seek to establish a community based on honor, integrity and awareness of others. Our commitment to this community begins with our first day of association with Thomas Jefferson University. In an age of advancing technology, we strive to maintain the integrity of the learner and learning experience and develop strong interpersonal and interprofessional skills.

The MLSB Honor Code

As faculty members and students, we pledge to conduct ourselves in an honest, ethical, polite and professional manner and to embrace the academic and social integrity on which Jefferson was founded; pursuing civility, honesty, equality, fairness and flexibility in all aspects of our lives. Accountability, adaptability, communication, commitment to excellence, willingness to serve, honesty in word and practice, personal integrity, civility and respect for others are essential characteristics of a health professional, faculty member and student of Thomas Jefferson University and are therefore the standards upon which we build our MLSB community.

- **Community** - A goal of each member of the university is to foster an environment of trust and cooperation with respect for the work and efforts of others. When we speak of community, we imply the student body, the faculty, the staff, and the administration, each of which contributes to the combined concept of community.
- **Academic Integrity** - We seek to enhance our professional knowledge and achieve excellence in our time spent at Jefferson but not at the cost of effort, honesty, integrity and trust.
- **Social Integrity** - Jefferson is dependent on equity among all its members, regardless of race, culture, religion, gender, age, disability or sexual orientation. Every individual should be treated with equal respect by their peers, faculty and staff.
- **Responsibility** - All members of the university must be willing and encouraged to discuss with their peers and all members of the community any action or issue that appears to be unacceptable and take the necessary actions in a timely manner to address the situation. The failure to deal with the breach in professional conduct not only jeopardizes the strength of the pledge but also puts the observer in direct violation.
- **Mediation** - Resources exist for students, faculty members and staff to meet with other people within the Jefferson community to work out any differences and disagreements with the help of a third party. If these efforts fail to reach a resolution, further resources through official university channels will be used to review any disagreement and determine the appropriate course of action.

These standards are dependent on the collective desire of all members of the academic community to enact the values in order to prevent and deter violations. If violations do occur within this system, each member of the community is responsible to support and uphold all aspects of the pledge and to contribute to the mediation and remediation of violations as necessary.

Department of Medical Laboratory Sciences and Biotechnology Policies

POLICY TITLE: ACADEMIC PERFORMANCE AND GRADE REQUIREMENTS

POLICY

This policy states the academic standards and the requirements for academic progression within the Department of Medical Laboratory Sciences and Biotechnology. For individual course grading procedures, you must refer to the specific course syllabus.

PROCEDURE

I. Academic Standards

Students are required to satisfy all MLSB, JCHP and University academic and professional behavior standards. Please refer to the appropriate college's handbook regarding coursework outside of MLSB. For the Department of MLSB, the following requirements must be met for students to remain in good academic standing and be eligible for graduation. **Please be aware that the cumulative grade point average (cGPA) calculation for the determination of academic standing will be limited to only those courses required for your degree program.²**

1. All **Graduate** Level MLSB students must maintain a cGPA of 3.0 *and* earn a passing grade (\geq C- or Pass in a Pass/Fail course) in all required didactic and clinical courses within the MLSB curriculum in order to remain in good academic standing and progress through the MLSB curriculum.
2. All **Undergraduate** Level MLSB students must maintain cGPA of 2.5 *and* earn a passing grade (\geq C- or Pass in a Pass/Fail course) in all required didactic and clinical courses within the MLSB curriculum in order to remain in good academic standing and progress through the MLSB curriculum.

Students who do not meet these academic standards will be subject to academic action (academic probation or dismissal).

II. Accommodations

Thomas Jefferson University is committed to providing equal education opportunities to all students, including students with disabilities, in accordance with section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act. Thomas Jefferson University will provide reasonable accommodations to all qualified individuals with disabilities to allow equal access and full participation to all university sponsored activities and programs. For more information on disability accommodations please contact the [Office of Student Affairs](#).

III. Repeating courses:

Only one course (lecture, lecture/lab or practicum) may be repeated³ during a student's tenure in the Department due to academic underachievement. Graduate and undergraduate students who earn

²The cGPA calculation to determine academic standing may differ from the cGPA provided in the academic transcript in Banner for students who had course credits within Jefferson prior to enrolling in an MLSB program.

³ Please consult with the Office of Financial Aid to determine impact on financial aid eligibility for repeated coursework, tuition and fees. Also refer to Section VI of this policy and the Scheduling and Assignment of Practicum Rotations Policy for further program implications of repeating a course.

their first grade of D in a graded course or their first Fail in a Pass/Fail course will be required to repeat that course. The student's progression within the Program may cease pending the successful completion of the prerequisites of subsequent coursework. This may require the student to stop-out while awaiting the next scheduled offering of the same course within the MLSB course offerings. This also may delay scheduled completion of program requirements and may jeopardize timing of or eligibility for graduation and/or financial aid. Students must consult with their academic advisor for the development of an education plan. Upon successful completion of the repeated course or practicum, with a grade \geq C- or Pass in a Pass/Fail course, the subsequent grade will replace the initial grade in determination of cumulative grade point average (cGPA). Students who earn a 2nd grade below C- will be dismissed from the program. Students are responsible for any tuition and fees associated with repeated coursework.

IV. Academic Probation

A MLSB student whose cumulative grade point average falls below the minimum required (3.0 for graduate students and 2.5 for undergraduate students) will be placed on academic probation.

It is the responsibility of the student to determine personal expectations of future academic performance as well as to consult their academic advisor regarding their ability to obtain the minimum cGPA by the close of the probationary period.

The student will have one full time semester⁴ to bring the cGPA back to the minimum requirement for courses within the program curriculum. Students must consult with their academic advisor for the development of an individual education plan. If a graduate student is enrolled in courses totaling fewer than 9 credits or an undergraduate student is enrolled in fewer than 12 credits during the probationary period, the probationary period will be extended by an additional semester.

At the end of the probation period:

1. If the student achieves the minimum cGPA and/or earns the minimum passing grade in a repeated course, the student is reinstated to good standing.

-OR-

2. If the student fails to achieve the minimum cGPA or receives a grade of less than the minimum required in a repeated course, the student will be recommended for dismissal due to insufficient academic progress.

In extraordinary cases not specified in this policy, the program director will consult with the department chair for further guidance regarding extension of probationary status.

V. Grounds for Dismissal

Students may be dismissed from the Department if the student:

1. Does not successfully attain the standards as outlined in the Medical Laboratory Sciences and Biotechnology Department's Academic Standards policy. These circumstances include:
 - Failure of any course (earned a grade <D) [this does not include the first Fail of a Pass/Fail course which may be repeated one time]

⁴ If the student placed on academic probation must stop out of the program (leave of absence) to repeat a course not offered the following semester, the probationary period will begin when the student returns for enrollment.

- Failure to achieve a cumulative GPA of 3.0 (graduate) or 2.5 (undergraduate) by the end of the student's academic probationary period or at the time of graduation eligibility
 - Failure to earn the minimum passing grade in a repeated course
 - Receipt of two or more D grades, inclusive of the original grade in a repeated course.
2. Violates the standards, policies and pledge outlined in the MLSB Student Handbook, Program Practicum Handbook, the JCHP Student Handbook, the TJU Student Handbook, or the University Community Standards.

VI. REQUIREMENTS FOR COMPLETION OF PROGRAMS

A student is required to complete their course of study in a timely manner. Except when it is necessary for the department to extend or alter clinical rotation schedules for circumstances beyond departmental control, full-time and part-time students are expected to complete program requirements within the sequence and timeframes indicated.

- Students who are enrolled in a one-year program within the Department of Medical Laboratory Sciences and Biotechnology must complete their program of study within 3 years.
- Students who are enrolled in a 2-year program within the Department of Medical Laboratory Sciences and Biotechnology must complete their program of study within a 4-year timeframe.
- Students who are enrolled in a 4-year program within the Department of Medical Laboratory Sciences and Biotechnology must complete their program of study within a 6-year timeframe.

Any student unable to complete their program requirements within these guidelines will be required to apply for readmission to the program as it is offered at that time and complete the full program, inclusive of any additional requirements of the program at the time of readmission.

VII. EFFECT OF ACADEMIC PERFORMANCE STANDARDS ON PROGRAM COMPLETION AND TUITION STATUS

Repeated courses, disciplinary measures, incomplete courses, as well as unavoidable delays in practicum scheduling are likely to delay scheduled completion of program requirements and may jeopardize timing of or eligibility for graduation and/or financial aid.

Students whose program progression is delayed/extended beyond the original planned completion date by changes in affiliate site availability, or other circumstances beyond college/site/department control, will not be required to pay additional tuition if the tuition for the said practicum course was previously paid; other charges, such as campus housing, will apply. However, if the start or completion of practica must be delayed due to: 1) an inability to achieve minimum course requirements 2) repeated courses 3) disciplinary measures 4) failure of the student to submit prerequisite documentation for practica or 5) any other deviation from the original degree plan, students should refer to the Registrar and/or Financial Aid to determine the additional tuition costs and fees.

VIII. READMISSION

A student who has been dismissed from the Department is eligible to apply for readmission. A student who wishes to reapply within 1 year of dismissal can apply directly through the Department (see below for Departmental Readmission procedures). Students who do not seek readmission within the 1-year time period from date of dismissal must re-apply for admission through the Office of Admissions.

Departmental Readmission Procedures

1. Readmission requests within 1 year of dismissal must be submitted in writing to the Department Chairperson and should include:
 - a. A letter requesting consideration for readmission including an outline of remediation activities performed (or scheduled to be performed) since the original student action was taken, and an outline of a proposed educational strategy to achieve eligibility for graduation.
 - b. A letter of recommendation from program-specific faculty in support of the application for readmission.
2. The Department Chairperson will review each student's request and the faculty's recommendations. This review may include reviewing the students' academic record, interviews with the student, and any additional information that will assist the Chairperson in reaching an informed recommendation.
3. Conditions may apply to students readmitted to the Medical Laboratory Sciences and Biotechnology Department that do not apply for first-time matriculating students. Readmitted students may be required to repeat more than one specified course to demonstrate academic preparedness to progress to subsequent academic and clinical experiences. Readmission requirements may include but are not limited to 1) repeating courses; 2) completing an independent study or assignment; 3) completing a student initiated or self-directed clinical experience (as a volunteer); and/or 4) passing a comprehensive written or practical exam. All readmitted students are subject to the academic and curricular requirements in place at the time of readmission. Additionally, start terms for the readmitted students will be determined by the program and based on the student's plan of study; readmitted students cannot assume that they will start in the next immediate term after readmission has been granted. Recommendations will be made on a case-by-case basis in the best interest of achieving student learning and performance needs.
4. Students will not be permitted to progress in didactic or clinical coursework until all readmission requirements are successfully completed. Coursework will be completed as per the University's academic calendar and the Department of Medical Laboratory Sciences and Biotechnology curricular sequence. The dates of the clinical practica are subject to the availability of the site.
5. The Department Chairperson, together with the Program Directors, will continue to monitor the progress of readmitted students until all requirements are met.

Department of Medical Laboratory Sciences and Biotechnology Policies

POLICY TITLE: SCHEDULING AND ASSIGNMENT OF PRACTICUM ROTATIONS

POLICY

This Policy states how students enrolled in the Department of Medical Laboratory Sciences and Biotechnology will be assigned to practicum rotations and the requirements for academic eligibility for rotation placements. Each program will issue a program-specific practicum handbook to students that will provide further detailed information, policies and procedures. Students should refer to their practicum handbook and syllabi for program policies.

PROCEDURE

I. ACADEMIC ELIGIBILITY FOR FIELDWORK

To be assigned to your practicum courses you must meet the following requirements:

Be in compliance with all matriculation requirements including health and background clearances, be in good academic standing or under an approved academic plan of action within the Department of Medical Laboratory Sciences and Biotechnology as evidenced by:

- Maintained a minimum cGPA of 2.5 (undergraduate) or 3.0 (graduate) in program curriculum
- Be cleared of any student action
- Achieved a minimum grade of C- in all prerequisite coursework for the practicum within the student's program of study

Note: *Students who do not meet these criteria will be required to meet with their respective program directors and other appropriate college faculty to determine academic readiness for their practicum. Students may be required to delay their practicum until reinstated to good academic standing. Graduation and completion of program may be delayed if the practicum is not completed within the expected time frame. It is the responsibility of the student to determine the impact on financial aid and tuition in this circumstance.*

II. ADDITIONAL PRACTICUM INFORMATION

1. Some practicum sites may require students to complete onboarding documentation and verification packets prior to attending their practicum at the site. This may include, but not limited to, paperwork for training, criminal background & fingerprint clearances, nondisclosure agreements, health screens, immunizations and recent drug screening results. Updated drug screens, health screens and immunizations may be required because results must be current for the start and duration of the practicum. The university offers clearance packages for student purchase via Complio. These procedures are at the student's expense. It is the responsibility of the student to complete and submit the requirements to the site/practicum coordinator within the requested onboarding timeframe. Onboarding procedures are not considered a hardship.
2. For students in campus housing who will need to continue to reside on campus during their practicum, which may occur after the expiration of the student's University housing contract, it is the student's responsibility to contact the Director of Housing and Residence Life to discuss extended housing options. It is the student's responsibility to understand contract periods of

the University assigned housing, as housing contracts do not always correspond to the dates of your academic program.

3. Students must adhere to the program, department, college and university policies and Community Standards while on practicum. If a student is dismissed from the practicum site for violation of these standards, disciplinary actions will be dependent upon the circumstance and nature of the violation. Potential action includes but not limited to, earning a D and repeating the course, or failing the course with departmental dismissal.

III. PRACTICUM ROTATION SCHEDULING

Practicum rotations are scheduled by the program practicum coordinator taking into consideration:

- availability of site instructional staff
 - a broad variety of practicum environments and duties
 - adequate supervision, staff interaction and representative workload
 - university, local, state, and federal operational guidelines for clinical and practical education
1. Assigned placements for all practicum courses, including assignment to specific sites or times, is contingent on availability of an appropriate practicum affiliate site and adequate supervision.
 2. Practica (days, times and sites) are scheduled and confirmed by the program practicum coordinator in consultation with the affiliate faculty. No practicum assignment changes can be made unless (a) the student is able to demonstrate that attendance at an assigned rotation site has or will create undue or unreasonable hardship, or (b) the affiliate faculty or program practicum coordinator must alter the schedule. During an assigned practicum, minor schedule changes may occur depending on circumstances.

NOTE: *Students are advised that even when a hardship is demonstrated, it may not be possible to assign/re-assign the student to an alternate site immediately. When this is the case, the student may choose to postpone a rotation until a site becomes available. Postponement may result in delay of program completion and graduation.*

3. In no event is the student permitted to make their own arrangements for practicum placements or to change scheduled practicum days, times or sites without a prior request to and approval by both the program practicum coordinator and then the site affiliate faculty.

IV. TRANSPORTATION, ACCOMMODATIONS AND PRACTICUM EXPENSES

Students are responsible for the arrangement and finance of their housing and their transportation to and from clinical sites. With few exceptions, Philadelphia city and area sites are reasonably, if not directly, accessible using public transportation (train, bus or subway). Public transportation is not considered a student hardship. The cost and duration of the commute to a site may vary depending upon the individual's mode of transportation. Commuter Services offers discounts for public transit passes and some local parking facilities that must be arranged at least 2 months in advance. Students selecting or assigned to distant practicum sites must arrange their own transportation and housing.

Department of Medical Laboratory Sciences and Biotechnology Policies

POLICY TITLE: PROFESSIONAL AND ETHICAL CONDUCT

POLICY

This Policy describes the Department of Medical Laboratory Sciences and Biotechnology definition of Professional and Ethical Conduct as it may apply to the laboratory and other instructional setting, and the procedures instituted if unprofessional or unethical conduct is suspected. This is not a stand-alone policy. Students should refer to the Jefferson College of Health Professions Student Handbook and the Thomas Jefferson University Student Handbook for comprehensive definitions, policy and procedures. Students should refer to the course syllabus for course-specific guidelines and expectations of conduct.

All students are subject to the University Community Standards and departmental, college, university and practicum site policies and procedures regarding unprofessional, unethical, unsafe and unsatisfactory academic, industrial and/or clinical performance, preservation of intellectual property and sexual misconduct. Penalties for such performance or conduct will include disciplinary actions up to and including dismissal.

PROCEDURE

The determination of unsatisfactory, unsafe or unprofessional conduct is made in accordance with course, department, college, and university guidelines and as well as government and industrial standards of ethical and professional conduct for research, academic and laboratory practice when in that setting. Immediate procedures are implemented by the course faculty which will be reported to the Department Chair for any further consultation and/or action.

If a student's conduct is deemed a significant violation of professional standards of practice and code of ethics, industry nondisclosure agreements, university academic integrity policy or the Community Standards, students may be recommended for investigation through the University's community standards system. Sanctions may result in, but are not limited to (1) automatic failure of the course (2) dismissal from the program, (3) probation with professional development plan and repetition of the course, or (4) mandatory academic or practicum time extensions to complete missed hours during remediation (if the student was removed from the course).

To successfully complete each didactic, laboratory or practicum course, students are expected to demonstrate competencies consistent with the body of knowledge, learning objectives, policies and standard procedures taught in program curricula and described in course syllabi and student handbooks. If the student demonstrates behavior that is detrimental to the well-being of self, patients, fellow students or faculty members, all activities will be suspended immediately.

I. PROFESSIONAL CONDUCT

Definitions:

Unsafe conduct: includes but is not limited to action(s) which poses a threat or potential threat to the well-being, health or safety of patients, faculty, health care workers, fellow students, or self. This includes mishandling of specimen, omission or inappropriate use of PPE and disregard for standard

precautions, biosafety equipment or biological disposal, even if no actual incident or harm resulted from the conduct.

Unprofessional conduct: includes but is not limited to malicious, insubordinate, intentional or negligent action(s) which fall below, compromise or disregard the practice and ethical standards of the professional discipline, course policies, the health care community, and the educational climate.

Unsatisfactory practicum performance: unprofessional conduct that negates full and honest assessment of student knowledge, skill(s) and/or time-in-practice sufficient to meet the minimum competencies, objectives, performance criteria, or scheduled experiences of the practicum. Refer also to the Academic Performance and Grade Requirements Policy.

Students are expected to abide by the guidelines incorporated in their professional Codes of Ethics, and by standards and regulations applicable to clinical and non-clinical laboratory practice and educational environment. Students must demonstrate responsibility in the care of equipment and materials they use and the integrity and confidentiality of specimens they process. Students are expected to demonstrate the program-specific competencies consistent with the policies and standard procedures taught in program curriculum and described in course syllabi and student handbooks. Examples of such conduct include, but are not limited to:

PROFESSIONALISM includes, but is not limited to the following:

- Follow established safety regulations by practicing proper handling and disposal of biohazard material.
- Maintain punctuality: arrive to class, laboratory sessions and practicum sites at the expected time as established by the syllabus/faculty/clinical instructor/principal investigator
- Follow the dress code for professional attire and lab-safety.
- Maintain work quality and quantity under stress, display proper demeanor
- Actively participate in all assigned laboratory activities, demonstrating an interest in learning and professional development.
- Accept instruction and constructive criticism with the intent to improve performance.
- Follow guidelines for documentation, this includes but not limited to laboratory documentation, specimen documentation, data entry, timekeeping and workload recording.
- Protect the intellectual property of the MLSB programs and affiliated industry entities
- Communicate effectively and professionally with faculty, peers, and instructors.

II. ACADEMIC AND PROFESSIONAL INTEGRITY

The Department abides by a zero-tolerance policy for intentional misconduct. A finding of either intentional or unintentional misconduct will result in immediate disciplinary action. Students are expected to avoid situations in which academic or professional integrity may be compromised, either intentionally or unintentionally. The policy of the appropriateness and use of generative artificial intelligence (GAI) will be provided at the course-level in the course syllabus. Be advised, absent a clear written statement from a course instructor, use of or consultation with generative AI shall be treated analogously to assistance from another person and considered plagiarism. In particular, using generative AI tools to substantially complete an assignment or assessment is not permitted without specific instructions from the instructor. Refer to the University Academic Integrity Policy and Community Standards.

Examples of such misconduct include, but are not limited to, those stated in the University Academic Integrity Policy and the following:

DIDACTIC OR PRACTICAL EXAMINATION & QUIZZES

- Using any means to share responses.
- Erratic or suspicious body or eye movements witnessed during testing.
- Using notes, texts or any other supportive material not permitted or provided by the instructor or proctor as a test aid (i.e. scratch paper).
- Capturing or sharing images, videos or materials that are intended for proprietary use or as part of an assessment.

ASSIGNMENTS

Examples of assignments involve formative assessments, worksheets, technical projects, case studies, computations, specimen preparations:

- Reporting results without performance of the test/experiment.
- Intentionally submitting “non-answers” to meet assignment deadlines or to receive automated answer feedback from web-based assignments.

WRITTEN PAPERS

Examples of written papers may involve manual or computerized literature searches or reviews, seminar and/or case reports, journal reviews, research reports, clinical or basic research:

- Student using another's (including generative AI) information, ideas, or language and submitting them as their own.
- Plagiarism (using all or part of a previously published or unpublished production that is not the student's own work, including generative AI, without crediting the source; or plagiarizing one's own work from elsewhere) is included in this category.
- Using commercial sources for written papers.
- Submitting the same or adapted paper from previous coursework without expressed permission of the instructor(s).
- Falsifying references or bibliographies.
- Disclosing protected intellectual property of an industry entity without authorization from the entity (verbally or in written form).

PRACTICUM

- Looking up a diagnosis or result on an assigned unknown case in a logbook, data storage system or equivalent source.
- Reporting results without performance of a test.
- Providing answers to other students on cases for use as self-instructional samples, tests, or assigned cases.
- Changing notations, formulas and/or computations in a lab notebook/protocol for the purpose of sanitizing data or enhancing result validity before or after it has been reviewed and/or turned in.
- Consulting a pathologist, laboratory director, instructor, technologist, or other student for a diagnosis or result of a case with intent to claim the diagnosis or result as their own (phishing).

- Deliberately falsifying documentation of the quantity or quality of practicum work, backdating or other retrospective data entry or workload recording.
- Making changes to the practicum schedule without authorization from the practicum coordinator.

III. PROFESSIONAL INTEGRITY VIOLATION

In MLSB programs, academic and professional integrity are closely aligned for laboratory instruction and practicum courses. A violation in one is a violation of the principles of the other. Where the faculty/instructor/proctor or student holds a reasonable belief that an individual or individuals is/are not in compliance with site policies and professional integrity, certain procedures may be instituted to investigate such occurrence(s). These include but are not limited to:

1. Notice to the student
2. Suspension of the activity and/or removal of student from the activity
3. Notice to the Program Director and/or Department Chair
4. Disclosure of incident narrative/notice to the student for response
5. Proceed to Department level protocol

IV. DEPARTMENT LEVEL PROTOCOL

1. The faculty member or laboratory instructor, clinical instructor or principal investigator will submit a written report of the incident to the program director and/or department chair.
2. The incident will be brought before the department chair for review and recommendation. Sanctions may be recommended. If warranted, final decision can be made at the Departmental level. If appropriate, the report and recommendation will be forwarded to the Office of the Dean and may extend beyond a college-level sanction to the University Community Standards Board. If no action or recommendation is warranted upon review of the incident, the student will have the opportunity to reschedule, resume, or retake the interrupted assignment or exam (or comparable version of such).

V. SANCTIONS

1. Refer to the University Academic Integrity policy for possible sanctions.
2. Department-level sanctions include, but are not limited to:
 - a. Verbal warning or no further action to be taken if dismissal is not warranted. An incident report will be placed in the student's departmental file.
 - b. Written warning if dismissal is not warranted. The written warning will be placed in the student's file with a copy to the Office of the Dean.
 - c. The student will receive a "0" on the worksheet, paper, practical assignment, quiz or exam (which may result in a non-passing grade in the course and subsequent dismissal).
 - d. The student will be required to submit a second paper or assignment on the same or similar subject or on a specifically assigned subject; alternatively, the student will be required to sit for a second examination covering the same or similar subject matter. Grading on a repeated assignment, paper, and exam will be subject to penalty per the standards set at the discretion of the faculty member.
 - e. The student may have practicum time extended, if dismissal is not warranted
 - f. The student may be dismissed from the department and subject to review by the University Community Standards Board.

3. Students must recognize that penalties for unsafe, unprofessional and unsatisfactory performance; course failure; repeated courses; dismissals; make-up time; or additional assignments are likely to delay scheduled completion of program requirements, and may jeopardize scheduled eligibility for graduation, registry certification, and/or subsequent employment.

Department of Medical Laboratory Sciences and Biotechnology Policies

POLICY TITLE: ATTENDANCE

POLICY

Jefferson and its educational leaders recognize the importance of regular class attendance and online presence to the benefits to student learning. Faculty determine the most appropriate attendance policies to support learning outcomes in their class and state these policies on their course syllabus. Some accrediting agencies determine and set minimum standards for attendance in clinical settings. Students should recognize the importance of attendance and make every effort to be present for classes and participate fully. If a student is unable to attend class, they should engage in active and regular communication with the instructor. This includes informing the instructor/supervisor in advance of the session about the need to be absent and ensuring regular ongoing communication.

PROCEDURE

It is understood that punctuality, preparation, and participation are expected for all instructional sessions whether on-line or in-person. Student-centered teaching and learning depend on each student and the instructor preparing for and actively participating in the session. Written or electronic attendance will be taken by the instructor for each scheduled synchronous session. Methods may vary. All attendance records must document the date with year and the session instructor.

I. ATTENDANCE REQUIREMENTS

Attendance at scheduled sessions is an essential component of course participation and evaluation especially for the development of program-specific competencies. Full or partial (late-arrival/early-exit) absences from instructional sessions must be for a specific legitimate reason to be communicated to course faculty prior to the start of the session. **Always** refer to the course syllabus for more specific attendance guidelines particular to that course. It is the responsibility of the student to be aware of the attendance policy of each course, as specific course requirements, procedures and potential penalties vary.

1. In the event of a full or partial absence, it is the student's responsibility to make arrangements with the instructor on the day of return to fulfill any make-up work or receive missed materials. It is at the discretion of the instructor whether to permit make-up work depending on the circumstances of the absence.
2. The instructor has the discretion to forfeit the student's right to receive credit for missed work, participation, assignments or assessments relating to the missed instructional session depending on circumstances.
3. A student may be dismissed from an instructional session due to disruptive or unsafe behavior, or disruptive devices, and may forfeit credit earned from that session. Please note, penalties may apply for disruptive behavior/lateness/early-exit even if the instructor does not dismiss the student from the remainder of the session.

4. Students who are non-compliant with pre-matriculation, annual maintenance or site-specific onboarding requirements are prohibited from participating in the practicum and may be prohibited from attending class.
5. Students who are experiencing signs and symptoms of infectious illness (i.e. fever, vomiting) are discouraged from reporting to in-person instruction and need to notify the appropriate faculty by Jeffmail. In extenuating circumstances upon a student's return, the department reserves the right to request a doctor's note or health pass from JOHN to resume activities after the student reports an illness-related absence.
 - a. In the case of extensive absence and/or illness when it is not feasible for students to catch up on missed course work within the semester, students have the option to withdraw and apply for a leave of absence or other reasonable medical accommodation through the respective university process.
6. Any student with a pattern of attendance issues will be referred to their program director for counseling and/or student action.

II. PROCESS FOR STUDENT REPORTING OF ABSENCE, LATE ARRIVAL OR EARLY EXIT

1. Students **must notify** the course instructor and/or course coordinator of the full or partial absence via Jeffmail in all circumstances; Jeffmail confirmation of a verbal notice is also necessary.
2. Any planned/scheduled student absences should have as much notice to the instructor as possible and to ensure no disruption in instructional goals and assignments (an example of a scheduled absence is an upcoming doctor appointment that cannot reasonably be scheduled during extracurricular time). Simply because a student gives notice of an impending absence does not qualify the absence as legitimate by the course instructor. Posted exam dates will not be considered for scheduled absences.
3. The instructor and/or course coordinator listed in the syllabus must be contacted prior to the start of the session to be able to communicate the absence to all necessary persons.
 - a. In the event the student is unable to reach an instructor (out of office notification or guest lecturer), the student should leave secondary notification with the main department number 215-503-7844 which must include the student name, course and day/time of the session missed prior to 8:30am.
 - b. For all notifications, you must give your name, program, time and date, and your reason for the absence.
4. In the event the student receives a notice or call regarding an emergency, the instructor must be notified in real-time of any need to abruptly leave class, campus or practicum site.

III. VERIFICATION OF ABSENCE

The Department reserves the right to request written verification for absences. Students absent from a course for a prolonged period of time due to a change in health status, extended illness, or serious injury, may be required to furnish a note from their healthcare provider (or JOHN) providing clearance and indicating the date range of the absence and/or recommended date to return to school.

Department of Medical Laboratory Sciences and Biotechnology Policies

POLICY TITLE: FACULTY ADVISORS

POLICY

This Policy states how each student in the Department of Medical Laboratory Sciences and Biotechnology will be assigned a faculty advisor and the how appropriate and timely consultation with faculty advisors assists students in meeting administrative deadlines, avoids curricular errors and aids in the resolution of academic, professional or personal matters.

PROCEDURE

I. ADVISOR DESIGNATION

1. Upon admission into the Department of Medical Laboratory Sciences and Biotechnology, each student is assigned a primary faculty advisor and a secondary advisor. The role of the advisor is (1) to assist with and approve course registration in Banner; (2) ensure that the student is aware of issues that may affect their degree plan or progression through their curriculum; (3) coordinate with the program director regarding any concerns regarding academic progression.

NOTE: Program Directors will be either primary or secondary advisor for each student to assist with program-related issues.

2. Students will be advised of their faculty advisors and have their initial meeting during the pre-fall session of their program.

II. STUDENT RESPONSIBILITIES

1. Meet with your advisor at your assigned appointment during the pre-fall session to discuss the overall program, review your degree plan and to express any related concerns.
2. All registration, course drop/add, and accommodation forms, if applicable, must be reviewed with and approved by your advisor for each semester of your degree plan.
3. Students must seek guidance and approval from their advisor before registering for courses not specifically listed in their degree plan or registering for a course out of sequence in the degree plan.
4. Students are encouraged to seek advisors' assistance in identifying appropriate offices, agencies or personnel for matters which may be beyond the scope, knowledge or expertise of departmental faculty.
5. Beyond the registration process, schedule meetings with your advisor whenever you need assistance or guidance throughout the program and as needed thereafter.
6. If requesting documents to be completed, the advisor should be given 7 business days to complete the request.

III. ADVISOR RESPONSIBILITIES

1. Advisors should be available for advice, counseling, and support to both undergraduate and graduate students and can be reached in via Jeffmail.
2. Review all degree plans, review and approve registration, and any course drop/add during the semester
 - Except for the necessity to repeat a course for which the student has not earned the minimum required grade, students are not permitted to register for courses out of the sequence or schedule of their degree plan. Additional credits taken outside of the degree plan should be approved by the program director and are subject to additional tuition and fees that are the financial responsibility of the student.
3. All requests for course drop/adds, withdrawals, upper and/or lower division transfer credit, unforeseen changes in program curricula or another option within a program, course extensions, leaves, or withdrawals must be in writing and have the approval and signature of the student's primary advisor. In some instances, the approval of the Program Director and/or Chairperson may be required.
4. All communications between students and advisors regarding course changes, scheduling, or other provisions which affect sequential progression through a curriculum must be accompanied by a written note to the student's file. **Verbal agreements, promises, or individual interpretations of such changes will not be honored except as supported by written documentation.**
5. All communications regarding personal matters between the student and advisor shall remain confidential except in the instance where student safety is a concern.
6. Counseling for academic or professionalism concerns must be documented as a summary of the discussion items and the agreed action plan.

Department of Medical Laboratory Sciences and Biotechnology Policies

POLICY TITLE: COMMUNICATION

POLICY

This Policy outlines communication expectations for both students and faculty in the Department of Medical Laboratory Sciences and Biotechnology. Jeffmail is the most efficient and appropriate means of communication among students, faculty and staff. **Students and faculty are required to access and review Jeffmail accounts and Canvas-based communications at least twice daily.** Please note, Canvas-based communications have personalized push notification settings. Students are responsible to be aware of these settings to remain informed according to the policy. Fundamental to all communication is proper identification and knowledge of the person with whom they are communicating. As a reminder, all students, faculty and staff are required to wear their Jefferson ID displayed at or above chest level or by lanyard when in Jefferson campus buildings. On-line program students will not be issued a physical Jefferson ID unless their curriculum requires attendance on campus or at practicum sites. On-line students who require a Jefferson ID may complete the Photo ID application with the [Jefferson Photo ID Center](#) located in the Center City Jefferson Bookstore.

PROCEDURE

Communication is a vital part of creating and maintaining a safe and efficient learning environment. Communication includes verbal, written and physical nonverbal (body) language.

All communication should be carried out in a professional, effective and considerate manner. When communicating with others, take into consideration:

- The person or group with whom you are communicating
 - This includes, but is not limited to, rank, cultural norms of address, pronouns
 - Maintain an awareness of cultural diversity in communication style
- The nature and urgency of the information to be communicated
- The frequency of accessing communications: Email, Canvas Messaging, Mailbox
 - **Jeffmail and Canvas Inbox should be checked at least twice daily** for messages, notifications or calendar appointments
 - Mailboxes on the 22nd floor of Edison may contain returned papers/assignments and should be emptied routinely
- The most appropriate method of communication to be used
 - Urgent matters must be addressed as efficiently as possible
 - **Jeffmail is the preferred method of communication for all matters**, especially those requiring a response or specific feedback from an instructor, and as a follow-up/record of a verbal discussion

At all times, students and staff must remain respectful and polite.

I. Written Communication

1. Written communication includes, but is not limited to:
 - Email (Jeffmail), letters, and faxes
 - Canvas-based messages and appointments
 - Forms, reports and memos
 - Electronic chats/texts
2. Written communication should follow these guidelines:
 - Professional greeting of intended recipients
 - Message with proper use of language (avoid slang, sarcasm, or shorthand) to avoid misinterpretation
 - Be devoid of profane, offensive or discriminatory language
 - Closure with your full name
 - Proofread for the clarity of your intended message, grammar and spelling, and intended recipient prior to sending

II. Verbal Communication

1. Verbal communication includes, but is not limited to:
 - Telephone conversations
 - Voicemail messages
 - Meetings/class sessions
2. Verbal communication guidelines:
 - Clearly identify yourself when greeting unfamiliar people

- Always maintain a professional demeanor and intonation

III. Non-verbal Communication

1. Non-verbal Communication includes but is not limited to:
 - Facial expressions
 - Gestures
 - Eye contact
 - Posture
2. Non-verbal Communication Guidelines
 - Maintain professional outlook, posture and behavior

IV. Document Request Response Times

1. Emails – please allow 2 working business days for a response to your message
2. Document requests – please allow 7 working business days to process document requests for copies of completed course materials or records from the student file; other document request response times will vary

V. Communication with Faculty outside of instructional sessions

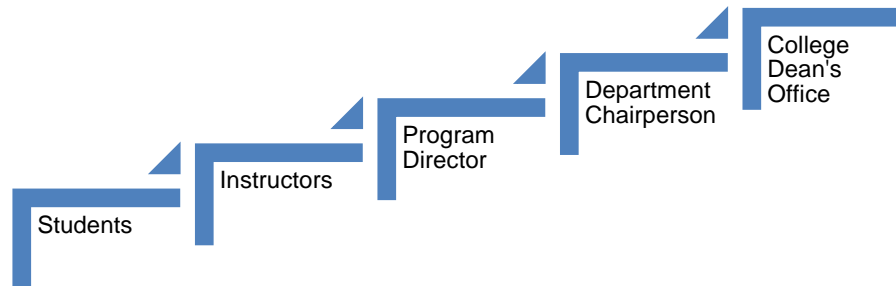
1. Exam/Assignment Performance
 - a. Student(s) should delay 24hr following the examination to present questions/concerns to faculty regarding their individual performance (grade) to allow the faculty time to review results. However, technical issues with an assessment, such as a confusing typo, may be addressed in real time. To ensure fairness and accuracy, a student should email their instructor with concerns over a grade within a week of the examination/assignment grades being released to students. This applies to individual course grades and the final course grade to be entered into Banner. Please review your grades frequently and notify your instructor of potential issues with the grade promptly after it is posted to best resolve the issue.
2. Office Hours Policy
 - a. Email or adhere to office hours posted in the syllabus for course concerns that are not urgent. Office hours are the times an instructor devotes their availability to students outside of class. We recommend you communicate if you plan to attend to ensure equitable scheduling of all students.
 - b. If office hours are by appointment, email the faculty or briefly arrange in person an appointed time to discuss an issue or concern that is not urgent. Unscheduled and non-urgent “walk-in or call-in” meetings should:
 - 1) be agreeable to the faculty member and student
 - 2) remain brief (<10 minutes) due to the unscheduled nature
 - 3) not interfere with tightly scheduled meal breaks or bathroom breaks
 - c. Crisis, emergency or other urgent situations should be communicated to your instructor in real time, as needed

VI. Communication Hierarchy

1. In all organizations, there is a correct line of communication. The first line of communication is the individual immediately superior to you (an organizational chart is found below). You

can discuss any issues or concerns you may have with your immediate superior. Your superior may be able to address your concern, take your concern to the next level, or instruct you to contact the individual in the communication hierarchy.

2. Failure to follow the correct communication hierarchy may result in your concern being dismissed or being sent back to the correct individual. This may result in a delay in addressing concerns.



VII. Grievance

1. All students in the Thomas Jefferson University community have the right to express a grievance when they allege, they have been treated in a manner not consistent with the community standards at the university. A grievance may involve a violation of university policy or procedure or improper, unfair, or arbitrary treatment. Students wishing to file a grievance against a faculty member, staff member, or administrator should seek counsel from the Grievance Officer. There are a number of university policies for which the Grievance Policy does not apply. Refer to the college student handbook for the most up-to-date procedure. <https://www.jefferson.edu/life-at-jefferson/handbooks/rights-responsibilities/grievance-procedure.html>

Department of Medical Laboratory Sciences and Biotechnology Policies

POLICY TITLE: CELL PHONE AND PERSONAL MEDIA DEVICES

POLICY

This policy states the Department of Medical Laboratory Sciences and Biotechnology standards for appropriate use and keeping of personal cell phones and other personal media devices during instructional sessions. This does not pertain to the use of Department-issued iPads for instructional use during class for note taking or during assessments requiring Exemplify/ExamSoft or other software.

Cell phones and smart watches are ubiquitous in our society and this policy does not seek to deny the relevance of modern communication. However, the attentiveness and active participation of students without distraction is vital for success in an active learning environment. In the procedure below, guidelines are given for the use and storage of personal media devices.

PROCEDURE

I. General use and guidelines

1. Unauthorized videos, photos, screenshots or other recordings of instructional sessions, web-conferenced meetings or of instructional & testing materials are prohibited.
2. Authorized in-person recording or digital recording of web-conferenced sessions must be approved by the instructor and disclosed prior to the start of recording. The Department, and University policies on Electronic Recording Devices, Academic Integrity and Professionalism as well as Community Standards and HIPAA apply when using media devices, including cameras, phones and watches.
3. Students will be required to download and access digital conferencing software, examination software and other instructional applications as directed. See course syllabi for further details. It is the responsibility of the student to maintain software updates and system requirements.
4. At no time are cell phones, smart-watches, earbuds or other personal media devices to be in use by a student during in-person or web-conferenced exercises, quizzes, tests or exams in a manner that violates the integrity of the session. During quizzes, tests and exams all media devices that are not specifically required for the assessment and proctoring should be silenced and stored separately with the student's personal belongings for the entire duration of the testing period, including any scheduled breaks. No device may remain at the station with the student or otherwise concealed during testing sessions. Proctors will instruct students, if necessary, as to where to place devices for proctoring purposes. Students shall direct their attention to the instructional session or practicum session in progress and strive to only access personal media devices at scheduled break times when access is not prohibited. Personal media device usage that becomes a distraction to the session or is perceived as inattentiveness by instructors may incur warnings and grading penalties if they apply to the course. Students may not interrupt class or practicum activities to take photos of their progress or specific laboratory findings.

II. Non-Laboratory Class Sessions

1. Cell phones are to be silenced or placed on vibrate during lectures and dry-labs conducted in a regular classroom and online setting. They should not be used or referenced unless it is permitted by the instructor for specific instructional purpose. Students may choose to access phones during regularly scheduled breaks, except during testing periods. Otherwise, attention should be directed to the instructor or learning activity in progress.
 - a. At the Instructor's discretion, any student with a phone or other device that becomes a distraction or nuisance during the instructional session may be removed from the session. Both Attendance Policy and Professional & Ethical Conduct Policy penalties for inattentive or disruptive behavior apply.
2. For known safety concerns or anticipated urgent calls/notifications, please inform your instructor of an anticipated interruption. Cell phones may be kept on vibrate and the student may exit to take the expected call **only with prior notification of the situation to, and permission from, the Instructor**. Otherwise, the exit will be considered disruptive and a partial absence.

III. Laboratory Sessions

1. Cell phones are to be silenced or placed on vibrate mode and stored with the student's personal belongings outside of the laboratory space. To prevent biohazard contamination all personal electronic devices including laptops, phones, tablets, iPads and other media devices, are not permitted at all in the laboratory unless specifically instructed to do so under special conditions defined by course faculty.
 - a. Students who are caregivers may provide the Department's main line 215-503-7844 as an alternate emergency contact phone number to a person who may require the urgent attention of the student during a laboratory session where phones are not permitted.
2. For known safety concerns or anticipated urgent calls/notifications, the student must communicate the situation to the laboratory Instructor prior to the lab session for any practical accommodation.

IV. Practicum Sessions

1. Cell phones are to be silenced or placed on vibrate mode and stored with the student's personal belongings while on practicum. Access to personal media devices is advised to be limited to scheduled breaks and lunch break. Usage that is deemed disruptive or inattentive to the practicum site may result in grade penalties or dismissal from the site for unprofessional behavior. Taking photos of specific findings with a personal device is prohibited. To prevent biohazard contamination all personal electronic devices including laptops, phones, tablets, iPads and other media devices, are not permitted at all in the laboratory or in a procedure room.
2. For known safety concerns or anticipated urgent calls/notifications, the student must communicate the situation to the laboratory or practicum Instructor prior to the session for any practical accommodation.

V. Computer Based Testing (Exemplify)⁵

1. Medical Laboratory Sciences and Biotechnology students must install and maintain the current version of **Exemplify / ExamSoft** app on their iPad and must adhere to any email instructions from the Scott Library Academic Commons regarding updates and system maintenance of their current version of the software.
2. Students are required to access and use Exemplify on their department-issued iPad for all assessments
3. Students must access Exemplify (ExamSoft) and download the posted examination in advance of the testing period during the timeframe specified by the course instructor. Any student who fails to download an examination during the specified timeframe will receive an automatic 5-point deduction from the examination score received if the download fails and an alternate method of testing is required to be arranged on short notice.
4. On examination day students must:
 - a. Have a fully charged iPad (There is no guarantee that outlets will be available for charging.)
 - b. Have an A/C power cord available for their device. (There is no guarantee that outlets will be available for charging.)
 - c. Set the internal clock to the correct date and time (EST).
 - d. If being proctored remotely, a second device with working camera and video capabilities must be charged. Prepare a test setting according to instructions.
 - e. If being proctored remotely, follow the video set up instructions of the proctor for proper visualization of the student, testing device and immediate surroundings.
 - f. Upload the examination upon completion or upon the scheduled examination time limit.
 - g. Successful file upload is the responsibility of the student; credit will only be given to the timely receipt of student file uploads.
 - h. Before leaving the room or teleconferencing session the student must display the upload confirmation green screen to the proctor and receive the proctor's acknowledgement.
 - i. Any attempt to tamper with or disable the electronic testing software security features will be considered a violation of the Honor Code and Community Standards and will result in disciplinary action.
 - j. During an examination period, only those devices required for the assessment are permitted with the student. For remote assessments, only those devices required for the assessment should be accessed or handled by the student.
 - k. Additional exam support materials, such as paper or calculators, are not permitted unless specifically approved and provided by the proctor.
 - l. Support materials that were provided must be labelled with the student's name and must be returned to the proctor at the end of your exam, even if unused.
 - m. Students with testing accommodations may be scheduled to take the exam in an alternate proctored location with the required advanced notice to the instructor. Refer to the accommodation letter for instructions.
 - n. Follow the instructions for the exam provided by your instructor or proctor as course-specific methods may vary.

⁵ See also the "Examination Software" section of Course Policies of most course syllabi.

Department of Medical Laboratory Sciences and Biotechnology Policies

POLICY TITLE: MLSB LABORATORY SAFETY AND INFECTION CONTROL

SCOPE:

This policy/procedure applies to the Department of Medical Laboratory Sciences and Biotechnology and serves as a supplement to University Personal Attire and Environmental Health and Safety policies

PURPOSE:

All personnel and students must participate in maintaining a safe working/learning environment. Awareness of the major causes of accidents is the first step toward their prevention.

Laboratory section instructors monitor safety in the laboratory. Their function is to consider all matters of laboratory safety and ensure implementation and observance of established rules. Students or personnel should report any dangerous situations to their instructor. Program Directors ensure the implementation of a safe laboratory environment by reviewing all health and safety procedures and safety/accident reports.

Policies regarding Environmental Health and Safety, including Life Safety, Biological & Laboratory Safety, Accident Investigation, and Occupational Safety and Hazardous Materials and Environmental Health are available to the public at [Environmental Health & Safety home](#).

Chemical Hygiene & Bloodborne Pathogen Training

All students will receive education on Standard (Universal) Precautions, blood-borne pathogens, chemical safety, use of engineering controls, and protective equipment. It is the responsibility of the Laboratory Instructor and the student to ensure compliance.

Fire Training and Education

Students shall have a sufficient review of [Fire Safety procedures](#) which includes:

- R.A.C.E and P.A.S.S. procedures
- How to initiate a Code Red and usage and function of the fire alarm system
- Procedures all personnel should follow to contain smoke and fire through building compartmentalization
- Emergency evacuation procedures

Fire Precautions

- Smoking is prohibited throughout the laboratories and in all University buildings, including outside stairways
- Turn off gas and electrical equipment when not in use
- Emergency exits are available on each floor
- Do not obstruct fire towers and exits
- Always be aware of nearest exit in your area of work
- Identify the location of fire exits, fire alarm boxes and fire extinguishers on the floors where you are

Definitions

- [Code Red](#): Jefferson's emergency code to initiate a response to a suspected fire or fire alarm
- Code Red, Confirmed: An announcement which indicates that there is an actual fire within a building which may affect normal operations

- Code Red, All Clear: An announcement which indicates that the fire or alarm condition has ended
- R.A.C.E.: An acronym:
 - Rescue - Help anyone from immediate danger
 - Alarm - Pull the nearest fire alarm pull station and call Jefferson Security at 811. Give exact location and details of the fire. NOTE: 811 can only be dialed from a Jefferson phone
 - Confine – Closing doors in the fire area to contain smoke and heat
 - Evacuate – Move away from smoke and heat or Extinguish – Extinguish small fires
- P.A.S.S.: An acronym used to remember the proper operation of a fire extinguisher:
 - Pull – the pin between the extinguisher’s handles
 - Aim – the nozzle at the base of the fire. You should stand 6-10 feet away from the fire
 - Squeeze – the handle of the fire extinguisher
 - Sweep – the nozzle from side to side across the base of the fire
- Upon activation of a Code Red, all students and personnel who are away from the fire scene shall do the following:
 - Be aware of any additional instructions given via the Public Address System
 - Keep all identified smoke barrier doors closed; prepare to evacuate if directed
 - DO NOT use elevators

Electrical Safety

The electrical safety program ensures that all laboratory instruments and appliances are grounded and checked for current leakage as required by OSHA.

In the laboratory, most of the equipment is powered by AC current. Electrical safety checks are performed on all electrical equipment in the laboratory initially, when there is a major repair, or when it is moved. However, the potential of electrical shock still exists throughout the laboratory.

Operator Responsibilities

- Avoid use of extension cords and two-prong plugs
- Never operate electrical equipment with wet hands
- Perform a visual inspection of equipment for frayed or damaged power cords, broken or malfunctioning switches, pilot lights, etc.
- Notify the instructor immediately if any abnormal conditions are found which affect the safety of the equipment
- Immediately turn off and unplug the power cord from any equipment that produces an electrical shock when touched.
- Immediately notify Maintenance when a safety hazard exists

LABORATORY DRESS CODE

To maintain a professional image and ensure safe learning/working conditions, all personnel and students must adhere to the following guidelines in the MLSB teaching laboratories. Required PPE will be provided for the student for laboratory instruction; however, it is the financial responsibility of the student to obtain appropriate shoes and personal wardrobe items. Please note that while completing practicum courses, the dress code defined by the practicum site may supersede that of the Department. This dress code applies to personal clothing worn under laboratory coats and other PPE. Scrubs are strongly encouraged to be worn under the laboratory provided lab coats.

As students of laboratory professions, students should be prepared for laboratory instruction or laboratory practica with appropriate laboratory attire including:

- Proper leg coverings (no skin exposed from waist to footwear)

- Proper footwear that covers whole foot (non-porous, closed-toe, non-slip, stable heel)
- Long hair or beards safely secured away from the face and workspace
- No personal fragrances, such as perfume, cologne, or scented lotion
- Trimmed and clean fingernails; no artificial fingernails

Examples of unacceptable laboratory attire include but are not limited to shorts, capris, pants with ripped openings, open shoes, bare or exposed ankles/legs/feet, excessively long/loose sleeves, long loose hair, and long or artificial nails. In summary, clothing items that do not provide adequate bodily coverage, anti-slip protection or that may pose a potential hazard in and of itself or pose a risk to the integrity of the PPE, are considered unacceptable.

HAND WASHING

Hands will be washed frequently and especially prior to leaving the laboratory. Handwashing is considered the most important single procedure for preventing and controlling the spread of infection. Proper handwashing has been shown to eliminate or greatly reduce hand carriage of pathogens.

Handwashing to be used in the laboratory:

- When entering for the day's session (hand sanitizer can be used as a substitute)
- Before and after eating (not in the laboratory)
- Before and after using the restroom
- Before leaving the laboratory at the end of a wet session
- After removal of gloves due to:
 - After contact with contaminated objects
 - After contact with patient specimens, Standard Precautions apply to all specimens
 - Leave the laboratory
 - *Gloves must be removed and hands washed before touching doors*

Hand-Sanitizer Procedure:

- Use a full pump of hand sanitizer
- Rub hands until hands are dry

Hand-Washing Procedure:

- Wet hands under running water
- Keep hands lower than elbows, apply soap
- Work into a lather scrubbing fingers, palms, backs of hands, wrist and forearms creating friction for at least 20 seconds. Cleaning under nails should be attempted.
- Thoroughly rinse hands under running water, preferably hot/warm water
- Use paper towels to blot and dry hands
- Use dry paper towel to turn off faucet, then discard

Laboratory Acquired Infections

Laboratory Acquired Infections are often acquired through spills and splashes of infectious material onto BARE intact or non-intact skin and mucous membranes.

Examples of how this commonly occurs:

- Touching mouth or eyes with fingers or contaminated objects.
- Eating, drinking, using lipstick, lip balm or chewing gum while in the lab.

To prevent laboratory acquired infections the following are mandatory:

- No food, drinks or chewing gum are allowed within the laboratory.

Benchtop Decontamination and Organization:

Benchtop organization and cleanliness:

- Keep workspace clean using 10% bleach or medical-grade germicidal wipes before and after the laboratory session and when potential contamination occurred (see specific instructions below)
- Keep workspace organized

- Keep aisles clean of all obstructing items
- Keep shelves clean, organized, free from clutter and dusted regularly

Ergonomics:

- Students are educated on Ergonomic Hazards and Musculoskeletal Disorders (MSDs)
- Address any concerns about ergonomics to Rehabilitation Medicine.

Equipment Use and Maintenance:

- Equipment can produce aerosols (i.e. vortexing and centrifugation)
- Centrifugation of specimens should be done using capped tubes, closed centrifuges
- Proper maintenance of equipment is necessary for safe use
- Safety equipment such as biological safety cabinets (BSC), autoclaves, U. V. lights, etc., are to be checked as described in the instrument operator's manual.
- Routine maintenance is listed in each operator's manual.
- Annual preventive maintenance is scheduled

Patient Specimen Handling:

- Patient specimens pose a significant risk of transmitting pathogenic microorganisms
- All specimens are to be treated as though they are potentially infectious
- Patient specimens are only to be opened with proper precautions
- Specimens for culture should only be opened in a BSC unless otherwise instructed by the microbiology instructor
- Serum and whole blood specimens will only be opened while utilizing a face shield, safety glasses/goggles, enclosed containment hood, or tabletop shield.
- Gloves are to be worn when handling any specimen
- Change gloves in the event of contamination
- Wash hands frequently when working with patient specimens
- Use care when processing specimens using sharps such as scalpels and needles. Penetration of the skin by sharp objects contaminated with infected blood or other body material is one of the most certain methods to produce infection in susceptible individuals
- Promptly discard of all needles, scalpels, and other sharps in the sharps bin provided
- Avoid leaving sharps lying on the bench-top or in the hood
- Pipetting specimens by mouth is not permitted. To pipette specimens, use automated or manual pipettes for all materials and patient specimens in the lab.
- Leaking specimens pose a significant risk to all as well as the integrity of the specimen itself.
- All received containers shall be visually inspected for leakage.
- In the event a specimen is leaking, notify the instructor

Culture Handling:

- The majority of bacterial cultures can be worked up on the benchtop while wearing appropriate PPE
- Instructors refer to Biosafety levels of organisms for specific guidelines by level and suspected agent and will guide students to appropriate handling of organisms

Exposures and Laboratory Accidents:

- All Laboratory accidents are to be reported using the Accident Reporting form
- If exposed to an infectious agent or injured with a contaminated sharp object, the student must report to JOHN with the completed Accident Reporting Form.

Biological Spill Clean-up (Handling)

- Personal exposure and first aid take priority over clean up.
- If you are exposed to infectious agents or materials, refer to the MLSB Occupational Exposure policy in this handbook.

The following supplies should be kept assembled in case of a spill.

- Spill kit

Disinfectant solution:

- 1:10 (10%) dilution of bleach, prepared fresh weekly is effective
- Contact EH&S for more information about selection of disinfectants, particularly for any organisms suspected of being atypical in their sensitivity to disinfectants.

Laboratory Spill Clean-up Procedures:

Spills involving microorganisms requiring BL-1 or BL-2 (low to moderate risk agents) containment

- Instructors need to be notified and will guide procedure
- Alert people in immediate area
- Be sure PPE is intact, if not, replace PPE before clean-up
- Cover an area twice the size of the spill with 10% bleach solution
- Allow 20 minutes of contact period with disinfectant.
- Wipe down any contaminated stationary equipment or furniture with disinfectant
- Use forceps, tongs, or broom to remove broken glass and other items; place in sharps container or red bag as appropriate. Use the spill kit scoop for picking up small amounts of broken glass. Never use fingers to pick-up broken glass or sharp objects.
- Remove towels and re-clean area with disinfectant solution.
- Decontaminate (autoclave, chemical treatment) reusable clean-up items and other reusable equipment, as appropriate.
- Inform laboratory personnel when the cleanup is complete.
- Complete Accident Report Form if there is an exposure. See MLSB Occupational Exposure policy.

Spills inside a Biological Safety Cabinet:

- Instructors need to be notified and will guide procedure
- Keep the cabinet running
- Clean-up as per directions above, making sure to wipe down back and side walls of cabinet
- After completion, allow cabinet to run for ten minutes before resuming work.

Spills inside a centrifuge:

- Instructors need to be notified and will guide procedure
- Shut centrifuge off and do not open the lid for 20 minutes to allow aerosols to settle.
- Use a squeeze bottle to apply disinfectant to all contaminated surfaces within the chamber, taking care to minimize splashing
- Allow 20-minute contact period and then complete clean-up of the chamber.
- Remove buckets and rotors to nearest Biological Safety Cabinet; disinfect and clean as per manufacturer's instructions.

Spills outside the Laboratory:

- Viable organisms should only leave the laboratory in a well-sealed primary (inner) and secondary (outer) container with a closable top. A test-tube rack inside a tray is not acceptable. Absorbable material is between the two. The secondary container is placed in a sealable tertiary container for transport.
- The exterior of the tertiary container will be wiped down with disinfectant prior to leaving the laboratory so that it can be transported without wearing gloves.
- Obtain a Spill Cleanup kit and follow instructions or carry paper towels and if a spill occurs use the towels to cover the spill but do not attempt a clean-up without appropriate disinfectant and personal protective equipment.
- Notify people in the immediate area and collect clean-up material and proceed with clean-up.

Material Handling:

- All materials that are considered corrosive, toxic, or flammable must be handled with caution. The following in particular require such care. See the SDS for information.
 - Strong oxidizing agents
 - Strong mineral acids and alkalis
 - Chlorinated hydrocarbons
 - Suspected carcinogens
 - Cyanide solutions
 - Mercury
 - Sulfides in solution
 - Flammable and explosive solvents

General and Specific Rules:

- Refer to SDS Online for specific information regarding hazardous material utilization, storage, cleanup and first aid. <https://msdsmanagement.msdsonline.com/9fa73862-fcb2-4c8e-929f-e6b7c17125db/msdsonline-search>
- Handle all dangerous materials with special care - do not splash splatter or spill. If accidents occur, clean up immediately by appropriate means.
- Remove soiled clothing immediately.
- Flush immediately all cuts, burns and punctures obtained when handling dangerous materials with running water. Obtain first aid. Know the location and operation of safety showers.
- Conduct all work on toxic and flammable materials under fume or exhaust hoods. When heating flammables, electric heating must be used - not open burners
- Wear approved safety masks/goggles/UV eyeglasses when eye hazards exist. Contact lenses should not be worn in work areas.
- For disposal, all corrosives go through Environmental Health & Safety and the Chemical Hygiene Officer should be contacted for consultation.
- Toxic materials are disposed of through the Environmental and Safety department (retrieves the acids and corrosive material). Special pick-ups are scheduled.
- Identify all containers holding radioactive materials or toxic agents by a warning label with the contents.

Waste Disposal:

- Contaminated and potentially contaminated trash and waste must be placed in laboratory waste cans for contaminated materials.
- Sharps are defined as any item that can potentially pierce a plastic bag
 - Sharps are to be disposed of in RED Plastic sharps bins
 - These bins are managed by Stericycle
 - Do not fill past the Fill Line
 - Examples of Sharps: Scalpels, needles, tubes (glass and plastic), culture plates, glass (broken and intact)
- Biohazardous waste that is not considered "sharps" waste are disposed of in the clearly labeled Biohazard Waste containers, lined with a clearly marked RED trash bag.
- Examples of contaminated, non-sharp waste: PPE, contaminated paper towels and gauze, and specimen bags.
- Non-sharp AND non-biohazardous waste may be placed in the white bins labeled "Regular Trash" or in the unlabeled trash receptacles in the laboratory.

Department of Medical Laboratory Sciences and Biotechnology Policies

POLICY TITLE: OCCUPATIONAL EXPOSURE

POLICY

This policy outlines the protocol for reporting any injuries and exposures that occur during scheduled instruction at Jefferson and non-Jefferson facilities. Essential to this policy is communication with [Jefferson Occupational Health Network for Employees and Students](#) (JOHN). This policy is for student injuries. Faculty, staff, or paid teaching assistants who are injured must complete an online [accident report via the TJUH intranet Employee Self-Service portal](#).

PROCEDURE

I. OCCUPATIONAL EXPOSURE/INJURY AT A JEFFERSON FACILITY:

1. Follow first aid protocol.
2. If you are exposed to infectious agents or materials, immediately remove contaminated clothing and other protective equipment and wash affected areas with soap and water. This can be done behind a privacy screen in the room where the event happened. Without privacy screen, unaffected individuals should exit the area to provide privacy.
 - a. Emergency Shower use (pull down on large ring to activate shower, pull down on small ring to deactivate/stop shower).
 - b. Emergency Eyewash use (flush eyes for at least 15 minutes using the nearest eyewash).
3. Bag contaminated clothing for further processing
4. Don clean clothing (provided)
5. If medical follow-up is warranted it should be sought immediately.
6. Here is a link for [the first steps to take](#) following an exposure (needlestick or body fluid splash)
7. Advise your clinical instructor/supervisor/faculty that an exposure has occurred.
8. **Record the source patient's name, DOB, and medical record number** or, if in a departmental microbiology teaching lab, the identity of the commercially purchased strain. This information will be turned over to JOHN or the emergency department personnel.
9. Center City students report to Jefferson Occupational Health Network (JOHN) at 833 Chestnut St., Suite 205 as soon as possible with this information. If after hours, report to the nearest TJUH Emergency Department. **The visit to the Emergency Department is charged to the student's insurance. The balance of the bill is the student's responsibility to pay. Contact JOHN at (215) 955-6835.**
10. Faculty initiate the TJUH paper accident report form and copy it before releasing it to the student - students/volunteers will bring this paper form to JOHN.
11. JOHN will evaluate the risks of the exposure and will schedule follow up. JOHN will also assist with the source patient testing.
12. You will be provided with a written schedule for follow up if indicated by the source patient results.
13. If post exposure prophylaxis is prescribed (antiviral medication to prevent HIV), the prescription is put through your insurance plan. All labs will be done through JOHN at no charge to Jefferson students.

II. OCCUPATIONAL EXPOSURE/INJURY OUTSIDE OF JEFFERSON:

1. Follow first aid protocol.
2. Advise your clinical instructor/supervisor that an exposure has occurred.
3. Follow the facility's protocol for reporting an occupational exposure.
4. Call Jefferson Occupational Health Network to report the exposure. The telephone number is (215) 955-6835. A message may be left on the confidential answering service.
5. Where feasible, report to JOHN for evaluation. If the distance is too far, report to the facility's Emergency Department for evaluation. The visit to the Emergency Department is charged to the student's insurance. The balance of the bill is the student's responsibility to pay.
6. All follow-up can be done in JOHN.
7. Students who report to the facility's employee health office are at risk for incurring substantial debts since the cost is often not reimbursable through insurance. If you are instructed to report to the employee health office, please make sure they understand you are a Jefferson student and discuss the cost of the evaluation.



(EHS USE ONLY)

ACCIDENT REPORT

PRINT LEGIBLY USING A BALLPOINT PEN OR TYPE. PLEASE BE SURE ALL COPIES ARE LEGIBLE.

SUPERVISOR'S INSTRUCTIONS:

1. Complete Section A (please print clearly).
2. Retain Department Copy and send rest of form with the individual to place of treatment.
3. Following treatment, the individual is to return from the place of treatment with a **PHOTOCOPY** of the form and report to supervisor. If the individual is unable to report back to the department, the Healthcare Provider must send a photocopy to the Department.

4. Call Accident Reporting Information at extension **5-SAFE (5-7233)** OR **(215-955-SAFE)**, if you are located off campus, for assistance in completing this form and an immediate record of the accident.
5. If the individual is **NOT** seeking treatment, please send the report to the Department of Environmental Health and Safety.
6. **Contract employees should report to their employer's designated place of treatment.**

A. SUPERVISOR'S SECTION - TO BE COMPLETED AND SIGNED BY SUPERVISOR AND THE INDIVIDUAL.

Please check one: University Employee JUP Employee Hospital Employee Physician Student Contract Employee

Full Name		Date of Birth	Sex	Social Security #	Hire Date (if known)
Home Address				Home Phone Number	
Department			Job Title		Phone Extension
Home Department Code		Work Department Code		Timekeeper's Name & Extension	
Please check one:	<input type="checkbox"/> Accident <input type="checkbox"/> Needlestick <input type="checkbox"/> Exposure <input type="checkbox"/> Occupational Illness	Date of Accident, Exposure, or Needlestick: / /	Specific Body Part Affected		Is the individual seeking treatment? <input type="checkbox"/> No <input type="checkbox"/> Yes
On the day of the injury, what time did you report to work? ___:___ <input type="checkbox"/> AM <input type="checkbox"/> PM		Time of Accident: ___:___ <input type="checkbox"/> AM <input type="checkbox"/> PM	Building, Floor & Room Number		Department Work Location
What was the individual doing at the time of the accident? How did the accident occur? Name the object or substance which directly injured the individual (i.e. if a person hit his/her head on a bookshelf, bookshelf would be the object). Name any additional object or substance adding to the cause of this accident (i.e. wet floor, uneven pavement, faulty equipment).					
If Occupational Illness (i.e. Dermatitis), please describe:					
Type of Accident: Check all that apply (See explanations on the back) <input type="checkbox"/> 1. <input type="checkbox"/> 2. <input type="checkbox"/> 3. <input type="checkbox"/> 4. <input type="checkbox"/> 5. <input type="checkbox"/> 6. <input type="checkbox"/> 7. <input type="checkbox"/> 8. <input type="checkbox"/> 9. <input type="checkbox"/> 10. Other (specify):					
Causal Factors: Check all that apply (See explanations on the back) <input type="checkbox"/> 1. <input type="checkbox"/> 2. <input type="checkbox"/> 3. <input type="checkbox"/> 4. <input type="checkbox"/> 5. <input type="checkbox"/> 6. <input type="checkbox"/> 7. <input type="checkbox"/> 8. <input type="checkbox"/> 9. <input type="checkbox"/> 10. <input type="checkbox"/> 11. <input type="checkbox"/> 12. <input type="checkbox"/> 13. <input type="checkbox"/> 14.					
What should be done to prevent recurrences? How will the the department follow-up? Does equipment, personnel or procedure require additional attention?					
Witness Name(s): If employee, department & extension; if non-employee, address & phone number.				Have you called accident reporting information? Extension 5-SAFE (5-7233) <input type="checkbox"/> Yes <input type="checkbox"/> No (please call)	
Supervisor's Name (Please Print)		Extension & Pager #		Supervisor's Signature X	
Individual's Name (Please Print)		Extension & Pager #		Individual's Signature X	

B. HEALTHMARK/EMERGENCY DEPARTMENT/UNIVERSITY HEALTH SERVICES: ATTENDING PHYSICIAN MUST COMPLETE SECTION B AND SEND THE INDIVIDUAL WITH A PHOTOCOPY BACK TO THE SUPERVISOR.

IF AN EMPLOYEE IS TREATED IN THE EMERGENCY DEPARTMENT, INFORM THE EMPLOYEE TO REPORT TO HEALTHMARK ON THE NEXT BUSINESS DAY. INJURIES THAT INVOLVE NEEDLESTICKS OR BIOHAZARDOUS EXPOSURES MUST REPORT TO UNIVERSITY HEALTH SERVICES. Diagnosis: Describe the injury or illness in detail and indicate the part of the body affected (i.e. amputation of right index finger at second joint, dermatitis of left hand)

Disposition: Return to work (If patient is to be sent home, or with work restrictions, call Supervisor.) <input type="checkbox"/> No <input type="checkbox"/> Yes, Date:		Compensation Service Follow-Up <input type="checkbox"/> No <input type="checkbox"/> Yes, Date:	Recurrence? (if this is directly related to a previous injury, it is a recurrence) <input type="checkbox"/> No <input type="checkbox"/> Yes, Date:
Treatment Given: <input type="checkbox"/> First Aid Only <input type="checkbox"/> Medical <input type="checkbox"/> Hospitalization Required <input type="checkbox"/> Fatality. Please notify Environmental Health Safety immediately (x3-6260). <input type="checkbox"/> Other (Describe) _____		Restrictions: Physician's Signature X	
		Date	

C. ENVIRONMENTAL HEALTH AND SAFETY (FOR EHS USE ONLY). PLEASE DO NOT WRITE BELOW THIS LINE.

Please check the appropriate box(es):	Follow-Up/Plan of Action
<input type="checkbox"/> Occupational Illness <input type="checkbox"/> Occupational Injury <input type="checkbox"/> First Aid Treatment <input type="checkbox"/> Medical Treatment <input type="checkbox"/> Needlestick	
Lost Work Days: <input type="checkbox"/> No <input type="checkbox"/> Yes If Yes, how many:	
Restricted Work Days: <input type="checkbox"/> No <input type="checkbox"/> Yes If Yes, how many:	
OSHA Recordable: <input type="checkbox"/> No <input type="checkbox"/> Yes	

FACULTY/STAFF

CORE FACULTY/STAFF	LOCATION	OFFICE PHONE
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MLSB 2024-2025 ACADEMIC CALENDAR

Academic calendars vary among the colleges in the university and also among the various academic departments within Jefferson College of Health Professions. [University Office of the Registrar website](#) lists academic calendars by [department](#). Follow the academic calendar specific for MLSB on the [MLSB Canvas website](#) for the most details.

PHOTO RELEASE FORM

Please see the Medical Laboratory Sciences and Biotechnology Community Canvas Course for the Photo Release Form in the “MLSB Department Student Handbook” module for your incoming cohort year. The assignment to complete the form is published under the heading “Student Forms to be Submitted.”

VERIFICATION STATEMENT

All students must verify that they have received and/or have access to the MLSB Student Handbook.

Proceed to the MLSB Community Canvas Course to fulfill this obligation by completing the MLSB Student Handbook Verification Statement published in the MLSB Department Student Handbook module.