it’s all about Choices...

SHRP School of Health Related Professions
Medical Laboratory Science

“A Perfect Blend of Science and Medicine”
Choices...

Students who choose UMDNJ’s School of Health Related Professions want a University that is exclusively dedicated to health care, with state-of-the-art equipment, rigorous coursework, and faculty who care. All our resources go toward supporting a health care educational environment that attracts and nurtures the very best faculty and students.
MEDICAL LABORATORY SCIENTISTS (CLINICAL LABORATORY SCIENTISTS) are highly skilled professionals who use state-of-the-art instruments and biochemical, microscopic, molecular and immunological techniques to analyze blood, tissues and other medical specimens. In a medical laboratory, they use their knowledge and skills in science, biotechnology and laboratory medicine to provide essential information to physicians and other health care professionals about the presence, extent, or absence of disease, as well as effectiveness of treatment. Working in a laboratory requires excellent technical skills as well as problem solving, data analysis, computer skills and good oral and written communication. Clinical laboratory tests are extremely valuable in assisting physicians and other health care providers with decisions on patient diagnosis and therapy. The practice of modern medicine would be impossible without the tests performed by medical laboratory scientists.

Medical Laboratory Scientists use their biomedical expertise to:

- Provide information to physicians to help diagnose cancer, diabetes, kidney disease, leukemia, drug overdoses, and many other conditions
- Identify pathogens, determine their susceptibility to various drugs, and detect their drug-resistance mutations
- Prepare stem cells, red blood cells and platelets for safe transfusion
- Use microscopy to identify abnormal cells and infectious agents in medical specimens
- Analyze DNA for mutations associated with genetic diseases
- Monitor drug therapy to ensure patient safety

Employment Outlook

Employment prospects for Medical Laboratory Scientists are excellent in hospital and commercial medical laboratories in New Jersey, the greater metropolitan area, and nationwide, with more positions available than graduates to fill them. In addition, program graduates are employed in many other medically-related settings such as physician offices, public health and veterinary laboratories; local, state or federal agencies; research and teaching institutions; as well as scientific and management areas in the biotechnology, pharmaceutical, chemical and cosmetic industries.
Eligibility for Advanced Degrees

Because of the broad-based blend of science and medicine in the curriculum, medical laboratory science is an excellent starting point for advanced degrees in medicine, dentistry, clinical and biomedical sciences as well as career advancement in laboratory medicine, molecular diagnostics, public health, research, education, hospital management and administration, and medically-related sales and marketing.

Frequently Asked Questions

What is the University of Medicine and Dentistry of New Jersey?

UMDNJ is the state university of the health sciences. There are eight schools on five campuses across New Jersey. UMDNJ is the largest fully accredited health sciences center of its kind in the nation and is a leader in health care research, education, and patient care.

What is SHRP?

SHRP stands for the School of Health Related Professions, one of eight schools at UMDNJ. Our specialization is two fold:
(1) Preparing students for entry-level health care careers,
(2) Educating health professionals for career advancement.

What types of degrees and programs does SHRP offer?

SHRP has 37 programs at all academic levels. Many programs, including the Medical Laboratory Science Program, are offered in conjunction with one or more of our collaborating partner institutions.
What does it mean that SHRP has collaborations with other institutions?

Collaborations are partnerships that SHRP has formed with other higher education institutions to provide you with the best education possible. SHRP offers all of the health-related courses in the professional component of the program and the collaborating partners offer the general education, basic sciences, and liberal arts courses in the preprofessional component.

Will I get a degree or certificate after completion of the Medical Laboratory Science Program?

It’s all about choices. UMDNJ-SHRP has three options for students who want to enroll in the Medical Laboratory Science Program:

**Option 1:** Joint Bachelor of Science in Clinical Laboratory Sciences offered by UMDNJ and twelve collaborating colleges and universities for students seeking a first baccalaureate degree.

**Option 2:** Bachelor of Science in Clinical Laboratory Sciences offered solely by UMDNJ for students who already have a baccalaureate degree from an accredited college or university in the United States.

**Option 3:** Certificate in Medical Laboratory Science for students with an international degree equivalent to a baccalaureate degree in the United States.
What institutions collaborate with UMDNJ-SHRP in the Joint BS in CLS program?

UMDNJ-SHRP has established collaborations with 12 New Jersey colleges and universities in offering a 4-year Joint BS curriculum in Clinical Laboratory Science with a major in Medical Laboratory Science. They are: Bloomfield College, Caldwell College, College of Saint Elizabeth, Fairleigh Dickinson University (Madison and Teaneck), Felician College, Georgian Court University, Kean University, Monmouth University, New Jersey City University, Ramapo College, Rutgers University (Newark), and Saint Peter’s University.

How is the joint program structured?

The Joint BS in Clinical Laboratory Sciences is a 4 year program. The first 3 years is the preprofessional component consisting of general education and basic sciences at one of the 12 collaborating institutions.

The last 15 months (4 semesters) is the professional component – the Medical Laboratory Science (MLS) Program at UMDNJ.

Where do I apply?

Begin by applying for admission to one of the collaborating partner institutions. For the first three years or the preprofessional component, you will register, pay tuition, apply for financial aid at the collaborating institution, and complete a minimum of 90-96
semester hours of education, including the required general education and basic science courses. If you anticipate completion of all general education and prerequisite science courses by the end of your junior year, then you should apply to the UMDNJ-MLS program by October 15th of your junior year. Once admitted to the MLS program you will register, pay tuition and apply for financial aid at UMDNJ and complete professional component coursework.

What is the required coursework at the collaborating institutions?

The required courses vary among the 12 collaborating institutions. The following general subjects are required: Human Anatomy and Physiology (4-8 cr), Cell Biology (3-4 cr), Microbiology (4 cr), Immunology (3-4 cr), General Chemistry (8 cr), Organic Chemistry (4-8 cr), Biochemistry or Molecular Biology (3-4 cr), Precalculus (3-4 cr), and Statistics (3 cr). In addition, coursework in Genetics is recommended.

You should contact the CLS campus coordinator at the collaborating institution you are considering attending to obtain a list of the required courses for the BS in CLS – Medical Laboratory Science major at that institution. You can also log onto our website for links for information about the collaborating institutions: http://shrp.umdnj.edu/dept/CLS/bscls_intro.html and information on preprofessional courses: http://shrp.umdnj.edu/dept/CLS/documents/mtpreproreq.pdf.

What are the criteria for admission to the MLS Program?

You must complete all preprofessional general education and basic science courses before enrollment at UMDNJ, and achieve a minimum overall grade point average of 2.75 with grades of C or better in all required science courses. An official transcript from the collaborating institution along with a list of courses in progress and planned is required. Acceptance into the Program is
competitive and based on the criteria listed above. Applicants from collaborating institutions who apply by October 15th of the year prior to enrollment receive first consideration, and will be notified of the admission decision by December 15th. Applications received after October 15th will be considered if the class is not filled.

**What is the student enrollment in the MLS Program at UMDNJ?**

Up to forty students are admitted into the MLS Program each year. Our high faculty to student ratio provides you with a supportive, student-centered learning environment with many opportunities for individual interaction and guidance by our expert professional faculty.

**When does the MLS Program begin?**

The MLS program begins at the end of May of each year and is completed in August of the following year. Students are admitted only once per year.

**How many credits do I need to complete in the MLS Program and what is the required professional coursework?**

You complete 45 credits in the MLS Program at UMDNJ. The professional course sequence is listed below:

**SUMMER (12 WEEKS) - FIRST SEMESTER**

- MLSC 2119  Basic Laboratory Operations  2 credits
- MLSC 2129  Hematology I  3 credits
- MLSC 2169  Body Fluids  1 credit
- MLSC 2249  Clinical Chemistry I  4 credits
- MLSC 2159  Clinical Immunology  2 credits
FALL (16 WEEKS) - SECOND SEMESTER

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>MLSC 4279</td>
<td>Clinical Microbiology</td>
<td>6</td>
</tr>
<tr>
<td>MLSC 2239</td>
<td>Immunohematology I</td>
<td>3</td>
</tr>
<tr>
<td>MLSC 4349</td>
<td>Clinical Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>MLSC 4329</td>
<td>Hematology II</td>
<td>3</td>
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</tbody>
</table>

** The sequence of clinical practice courses may vary.

** Passing a Comprehensive Examination in Medical Laboratory Science is required for the completion of Topics in Medical Laboratory Science course and completion of the Program.

SPRING (18 WEEKS) - THIRD SEMESTER

<table>
<thead>
<tr>
<th>Course Code</th>
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<tr>
<td>CLSC 4310</td>
<td>Laboratory Statistics, Management, and Education</td>
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</tr>
<tr>
<td>CLSC 4319</td>
<td>Introduction to Molecular Diagnostics</td>
<td>2</td>
</tr>
<tr>
<td>MLSC 4339</td>
<td>Immunohematology II</td>
<td>2</td>
</tr>
<tr>
<td>MLSC 4439</td>
<td>Clinical Practice in Hematology and Urinalysis*</td>
<td>2</td>
</tr>
<tr>
<td>MLSC 4449</td>
<td>Clinical Practice in Chemistry*</td>
<td>2</td>
</tr>
<tr>
<td>MLSC 4489</td>
<td>Independent Study</td>
<td>3</td>
</tr>
<tr>
<td>MLSC 4390</td>
<td>Topics in Medical Laboratory Science**</td>
<td>1</td>
</tr>
<tr>
<td>MLSC 4439</td>
<td>Clinical Practice in Immunohematology and Immunology*</td>
<td>2</td>
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<tr>
<td>MLSC 4479</td>
<td>Clinical Practice in Microbiology*</td>
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FALL (14 WEEKS—FOURTH SEMESTER

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>MLSC 4390</td>
<td>Topics in Medical Laboratory Science**</td>
<td>1</td>
</tr>
<tr>
<td>MLSC 4439</td>
<td>Clinical Practice in Immunohematology and Immunology*</td>
<td>2</td>
</tr>
</tbody>
</table>

Total 45 credits

* The sequence of clinical practice courses may vary.

** Passing a Comprehensive Examination in Medical Laboratory Science is required for the completion of Topics in Medical Laboratory Science course and completion of the Program.
Where do I take classes?

You will take your general education and prerequisite science courses at one of the collaborating institutions. You will complete most of your Medical Laboratory Science courses at UMDNJ’s Newark and Scotch Plains campuses. You will complete your clinical practice courses at our off-campus affiliated hospitals. In addition, parts of some classes are offered online, so you will need reliable access to the Internet and the necessary computer hardware, software and browser settings for UMDNJ’s online course management system.

How are the clinical practice courses scheduled?

Four clinical practice courses, comprising a total of 24 weeks, are taken during the third and fourth semesters of the program at the clinical laboratories of our affiliated hospitals. Clinical practice experiences complement the on-campus instruction and will give you invaluable hands-on experiences in real-life hospital clinical laboratories under the supervision and guidance of experienced medical laboratory scientists. Students are assigned to take their clinical courses at one or more of the following affiliated hospitals:

- Bayshore Community Hospital, Holmdel
- Englewood Hospital and Medical Center, Englewood
- Hackensack University Medical Center, Hackensack
- Liberty Health Systems, Jersey City
- Memorial Hospital for Cancer and Allied Diseases (Memorial Meadowlands Hospital Medical Center, Secaucus
- Sloan Kettering Cancer Center), New York City
- Newark Beth Israel Medical Center, Newark
- New York Presbyterian Hospital, New York City
- Robert Wood Johnson University Hospital, New Brunswick
- Saint Barnabas Medical Center, Livingston
- Saint Joseph Regional Medical Center, Paterson
• Saint Michael’s Medical Center, Newark
• Somerset at Medical Center, Somerville
• Trinitas Hospital, Elizabeth
• UMDNJ University Hospital, Newark
• VA New Jersey Health Care System, East Orange

These sites are located in Northern and Central New Jersey and in New York City. You will need to provide your own transportation to your assigned clinical sites.

Q
Can I take course work on a part-time basis at UMDNJ?

A
You can take course work on either a full-time or a part-time basis. Students attending the MLS program on a part-time basis are expected to complete the program in 8 semesters.

Q
Who will advise me during the MLS Program at UMDNJ?

A
The Program Director and Assistant Program Director or assigned faculty from SHRP will advise you.

Q
What degree will I receive after completion of the 4 year Program?

A
You will receive a Joint Bachelor of Science Degree in Clinical Laboratory Science from UMDNJ-SHRP and the collaborative institution where you completed your preprofessional courses.

Q
Is this an accredited program?

A
Yes, the MLS Program at UMDNJ is fully accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS), 5600 N. River Rd., Suite 720, Rosemont, IL 60018-
Will I be eligible to take a national certification exam after completion of this program?

Yes, after completing the MLS Program and your BS degree, you will be eligible to take the national certification exam in the Medical Laboratory Scientist category by the American Society for Clinical Pathology – Board of Certification - ASCP - BOC (http://ascp.org/boc).

What are the costs of the MLS Program?

While enrolled in the MLS Program at UMDNJ-SHRP, you pay tuition, fees and apply for financial aid at UMDNJ. Undergraduate tuition and fees may be found at the following website: http://shrp.umdnj.edu/general/regist_04_tuition_fee.htm.

Additional costs include: $600 (approximate) for books for the 15-month program; $300 for the student health fee for full time, matriculated students; $95 for a criminal background check; $150/year for on-campus parking; $100 for registration fees to attend professional meetings, and daily parking fees at the some of the affiliated clinical sites during clinical practice courses. All students are also required to purchase student health insurance unless a waiver is submitted documenting comparable health insurance coverage. Health insurance information may be obtained at: http://shrp.umdnj.edu/prospective_students/admissions/admissions4_insurance_requ.html.

Prior to enrollment, students must also defray the costs of a physical exam and immunizations to be provided by their own physician or health care practitioner. Tuition and fees are approved by the University’s Board of Trustees on an annual basis and are
subject to change.


Do you have advanced standing mechanisms for students with previous clinical laboratory education and experience?

If you completed a NAACLS accredited Medical Laboratory Technician (MLT) Program and recently passed the national certification exam (ASCP) in the MLT category (generally within 5 years of enrollment), you are eligible to receive 19 transfer credits from UMDNJ for your MLT professional coursework. These transfer credits will be applied to the professional course requirements for the MLS Program at UMDNJ. You may also receive advanced placement into clinical practice courses depending on your previous education and experience.

Alternatively, you may request Credit by Exam for particular course(s). Contact the MLS Program for further information at 973-972-5578.

Other Options in Medical Laboratory Science

Although first consideration is given to the Joint BS in CLS degree applicants to the MLS Program at UMDNJ, individuals
who already have a bachelor’s degree are also considered for admission to the program on a space-available basis.

If I already have a Bachelor’s degree from another accredited U.S. college, what are the admissions requirements and what credential will I receive upon completion of the MLS Program?

If you already have a bachelor’s degree from an accredited institution in the U.S., you are eligible to apply to the MLS program if you have a minimum overall grade point average of 2.75 and completed the following courses with a grade of C or better:

**General Education:** 30 credits to include English (3 cr), Humanities and Fine Arts (3 cr), Math and Computer Science (3 cr), Natural Science (3 cr), Social Science (3 cr), and electives (15 cr)

**Required Science courses:** 34-39 credits to include Human Anatomy and Physiology (4 cr), Cell Biology (3-4 cr), Microbiology (4 cr), Immunology (3-4 cr), General Chemistry (8 cr), Organic Chemistry (3-4 cr), Biochemistry/Molecular Biology (3-4 cr), Precalculus (3-4 cr), and Statistics (3 cr)

**Electives:** 7-12 credits

UMDNJ-SHRP will accept 76 credits for transfer in the above categories. Once you complete the 45 credits in the MLS Program, you will receive a second baccalaureate degree, the B.S. in Clinical Laboratory Science, offered solely by UMDNJ. An official transcript from all colleges attended is required.
However, if you met the admissions requirements 7 or more years prior to enrollment, you must update immunology, biochemistry/molecular biology either through formal coursework, relevant experience, or other documented mechanism.

Option 3: Certificate in Medical Laboratory Science
For students with an international degree equivalent to a U.S. baccalaureate degree

If I completed my baccalaureate degree in another country, what are the admissions requirements and what credential will I receive upon completion?

If your baccalaureate degree is not from the United States, you are eligible to apply to the MLS program providing you:

- Have an official transcript evaluation from an approved transcript evaluation agency in the U.S. that clearly states that your education is equivalent to a baccalaureate degree in the United States.
- Achieve a minimum GPA of 2.75
- Complete all prerequisite science courses with a grade of “C” or better
- Achieve a minimum score of 79/80 on the Internet-Based Test of English as a Foreign Language exam (or 550 on the paper-based exam), if your native language is not English. (TOEFL/TSE Services, 800-446-3319, 609-771-7100, http://www.ets.org/toefl.)
In addition, an official transcript from all colleges attended is required. Only a transcript that bears the official signature and/or seal of the originating institution and is mailed directly from that institution to SHRP shall be considered “official” and, therefore, acceptable for consideration for admission or for documentation for transfer credits.

Upon completion of the MLS Program, you will receive a Certificate of completion from UMDNJ. With this certificate, you will be eligible for the same employment opportunities and the national certification exam as program graduates who receive a BS in CLS.

Where do I apply for Options 2 and 3?

If you meet the eligibility requirements for these options, submit your application and required documents to the UMDNJ Office of Enrollment Services by October 15th.

**Discipline Specific Certificate in Medical Laboratory Science**

I have a Bachelor’s degree, but I do not meet all the prerequisite course requirements for the MLS Program. Are any other programs available for me?

Yes, the Department of Clinical Laboratory Science offers a part-time, 12-month Discipline Specific Certificate in Medical Laboratory Science whereby you could study only one of the disciplines in medical laboratory science. The program consists of on-campus classes and student laboratory experiences and off-campus clinical practice at an affiliated hospital clinical laboratory.
To take courses for this Certificate, you register as a non-matriculated student each semester. Upon completion of the coursework, you will receive a Certificate and be eligible for the national certification exams in the specific clinical laboratory science discipline given by the American Society for Clinical Pathology - Board of Certification ASCP-BOR (http://ascp.org/boc).

**What disciplines are available and what are the requirements?**

You must already have a baccalaureate degree from an accredited college or university in the U.S. with a minimum GPA of 2.75. In addition, if you are an international graduate, you must submit an official transcript evaluation from an approved transcript evaluation agency in the U.S. that states that your education is equivalent to a baccalaureate degree in the United States, and, if your native language is not English, achieve a minimum score of 79/80 on the Internet-Based Test of English as a Foreign Language exam (or 550 on the paper-based exam).

The Discipline Options, their credits, and prerequisite course are:

<table>
<thead>
<tr>
<th>Discipline Options</th>
<th>Credits taken at UMDNJ</th>
<th>All options require:</th>
<th>Specific option also requires:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical Chemistry</td>
<td>18</td>
<td></td>
<td>16 credits in chemistry</td>
</tr>
<tr>
<td>Clinical Microbiology</td>
<td>17</td>
<td>Baccalaureate Degree including 36 credits in biological sciences and chemistry; statistics strongly recommended</td>
<td>4 credits in microbiology</td>
</tr>
<tr>
<td>Hematology/Uricalysis</td>
<td>18</td>
<td></td>
<td>No additional requirements</td>
</tr>
<tr>
<td>Immunohematology/ Clinical Immunology</td>
<td>18</td>
<td></td>
<td>3 credits in immunology</td>
</tr>
</tbody>
</table>
Q: How do I apply for the Discipline Specific Certificate?

A: Applications are accepted only from March 1st to April 30th for classes beginning in May. Students are approved to take courses for the Certificate, only if space is available in the Medical Laboratory Science courses. For further information contact Dr. Deborah Josko at 908-889-2422 or joskotda@umdnj.edu.

Q: Once I complete a Discipline Specific Certificate, can I apply those credits to the Medical Laboratory Science Degree or Certificate sometime in the future?

A: Approval to take courses for the Discipline Specific Certificate does not imply eligibility or acceptance as a matriculated student in the Medical Laboratory Science Program. However, courses taken for the Discipline Specific Certificate may be applied toward a degree or certificate in Medical Laboratory Science if you 1) meet all admissions requirements and are accepted into MLS Program, and 2) your discipline specific courses were taken within 5 years of enrollment into the MLS Program.

The University of Medicine and Dentistry recognizes the value of diversity and is committed to providing appropriate support for its student body. UMDNJ-SHRP does not discriminate against qualified individuals on the basis of race, color, religion, gender, national origin, handicap/disability, age and/or sexual orientation.

The Essential Functions and MLS Program Technical Requirements for Enrollment in Courses are available at http://shrp.umdnj.edu/prospective_students/admissions/admissions_tech.htm. The Disability Compliance Coordinator may be reached at (973) 972-8594.
Mission

The mission of the Medical Laboratory Science Program is to educate students who will function competently, creatively, responsibly, and collaboratively in a dynamic health care environment.

Program Goals

The educational goals of the Medical Laboratory Science Program are 1) to prepare competent Medical Laboratory Scientists to function in the clinical laboratory science field at the baccalaureate level; 2) to provide the student with a broad-base background to serve as a foundation for future growth and development; and 3) to prepare graduates to adapt to a changing health care environment. The curriculum is designed to prepare graduates for entry-level practice in scientific/technical areas, supervision/management, education and research. It is also designed to socialize the student to the attitudes and values of the profession, to provide an overview of the legal, ethical, economic, political and social aspects of the profession and the health care delivery system in general, and to instill a commitment to life-long learning. Finally, the curriculum is designed to develop generic skills in effective communication, problem solving and self-directed learning.

Program Outcome Measures

Graduate Performance on the National Certification Exam

Out of 83 program graduates from 2009 through 2011, 96% passed the Medical Laboratory Scientist certification exam given by the American Society of Clinical Pathology-Board of Certification (http://ascp.org/boc).
Employment of Program Graduates

Out of 73 program graduates from 2009 through 2011, who sought employment immediately after graduation, 92% found employment in the field within 3 months of graduation, and 100% were employed in the field within 6 months of graduation.

Program Officials and Faculty in the Department of Clinical Laboratory Sciences.

Elaine M. Keohane, PhD, MLS (ASCP)CM SH, MB, Program Director, Professor, Clinical Laboratory Sciences

Deborah Josko, PhD, MLT (ASCP), M, SM, Assistant Program Director and Associate Professor, Dept. of Clinical Laboratory Sciences

Nadine Fydryszewski, PhD, MLS (ASCP)CM, Associate Professor, Dept. of Clinical Laboratory Sciences

Shashi Mehta, PhD, MT(AAB), CAGS, Associate Professor, Dept. of Clinical Laboratory Sciences

Drew J. Minardi, MA, MPA, MT,(ASCP)BB, PBT, CQA(ASQ), Assistant Professor, Dept. of Clinical Laboratory Sciences

Joann Rittersbach, BS, MT(ASCP), Assistant Professor Adjunct, Dept. of Clinical Laboratory Sciences

Carolina Caballero, BS, MLS (ASCP) HSM, Assistant Professor, Dept. of Clinical Laboratory Sciences
course Descriptions

MLSC 2119 BASIC LABORATORY OPERATIONS  
2 CREDITS

Instruction and laboratory practice focus on the basic knowledge and skills required for practitioners in all areas of the clinical laboratory. Selected topics include specimen collection and handling, safety, quality control, preparation of solutions, lab mathematics, spectrophotometry and microscopy. Clinical practice in phlebotomy is included. (Lecture hours 24; Laboratory hours 15, Clinical Practice hours 24)

MLSC 2129 HEMATOLOGY  I  
3 CREDITS

Instruction and student laboratory practice focus on routine manual and automated procedures in hematology such as complete blood count, differential count and coagulation screening tests. Blood cell maturation, hemostasis theory and selected hematological abnormalities are also discussed. Corequisite MLSC 2119 (Lecture hours 30; Laboratory hours 34)

MLSC 2159 CLINICAL IMMUNOLOGY  
2 CREDITS

Instruction and student laboratory practice focus on immunophysiology and special techniques used in the evaluation of the cellular and humoral components of the immune system including serological identification of infectious diseases. Selected topics include antigen-antibody reactions, TORCH testing, Infectious Mononucleosis, Syphilis, Pregnancy testing, C-Reactive Proteins, Hepatitis, Lyme Disease, HIV/AIDS, cellular interactions, and correlation of lab data in conditions such as autoimmune states, hypersensitivity reactions, and immunodeficiency diseases. Prerequisite MLSC 2119 (Lecture hours 24; Laboratory hours 9)
MLSC 2169 BODY FLUIDS 1 CREDIT

Instruction and student laboratory practice focus on the analysis of constituents of urine and other body fluids with emphasis on chemical and microscopic methodologies. Topics include profile patterns of selected disease states, renal function tests, routine urinalysis and tests performed on spinal fluid and stool. Corequisite MLSC 2119 (Lecture hours 15; Laboratory hours 9)

MLSC 2239 IMMUNOHEMATOLOGY I 3 CREDITS

Instruction and student laboratory practice focus on routine blood banking procedures including ABO/Rh typing, antibody detection, antibody identification, and compatibility testing. Laboratory procedures focus on basic and advanced serologic testing with an emphasis on problem solving and critical level thinking skills. Selected topics including immunologic principles, blood group systems, antigen-antibody reactions, and clinical correlation of laboratory data in conditions such as hemolytic disease of the fetus and newborn. Prerequisite MLSC 2119 (Lecture hours 35; Laboratory hours 32)

MLSC 2249 CLINICAL CHEMISTRY I 4 CREDITS

Instruction and student laboratory practice focus on routine manual and automated chemical methods used to measure common constituents in the blood such as glucose, electrolytes and enzymes. Recognition of technical problems and selected abnormalities are also discussed. Prerequisite MLSC 2119 (Lecture hours 52; Laboratory hours 4)

MLSC 4279 CLINICAL MICROBIOLOGY 6 CREDITS

Instruction and student laboratory practice focus on the isolation and identification of bacteria, including anaerobes, unusual pathogens, fungi, mycobacteria, viruses, and parasites commonly isolated from clinical sources through the use of selected media, and biochemical, serological and microscopic techniques. Additional studies include epidemiology, molecular diagnostics, antimicrobial characteristics and susceptibility patterns. Prerequisite MLSC 2119 (Lecture hours 68; Laboratory hours 48)
MLSC 4379 CLINICAL MICROBIOLOGY II  
(For MLT Career Ladder Students only)  
2 CREDITS

Instruction and student laboratory practice focus on the identification of unusual pathogens including unusual Gram negative bacilli, mycobacteria, fungi and parasites. Additional studies include epidemiology, molecular diagnostics, antimicrobial characteristics and susceptibility patterns. (Lecture hours 25; Laboratory hours 18)

MLSC 4329 HEMATOLOGY II  
3 CREDITS

Instruction and student laboratory practice focus on special procedures in hematology and coagulation with emphasis on problem solving. Selected topics include advanced concepts in the physiology of hematopoiesis and hemostasis, and clinical correlation of laboratory data in conditions such as anemia, leukemia and hemorrhagic disorders. Prerequisite MLSC 2129 (Lecture hours 35; Laboratory hours 32)

MLSC 4339 IMMUNOHEMATOLOGY II  
2 CREDITS

Instruction and student practice focus on advanced problem solving and enrichment through workshops, seminars, and case studies. Selected topics include blood donor selection and screening, donor phlebotomy, blood component preparation, transfusion practice, adverse effects of transfusion, regulatory practice and clinical correlation of laboratory data in conditions such as autoimmune hemolytic anemia. Prerequisite MLSC 2239 (Lecture hours 26; Laboratory hours 18)
MLSC 4349 CLINICAL CHEMISTRY II 3 CREDITS

Instruction and student laboratory practice focus on special chemical analyses of blood and body fluids to determine normal and abnormal physiological conditions. Emphasis is placed on interdependency of test results, physiological conditions affecting test results, and clinical correlation of laboratory data. Selected topics include endocrinology, toxicology and tumor and cardiac markers. Prerequisite MLSC 2249 (Lecture hours 44)

CLSC 4310 LABORATORY STATISTICS, MANAGEMENT, EDUCATION 2 CREDITS

Instruction and application of statistical methods in clinical laboratory quality control, method evaluation, and assessment of test validity and diagnostic accuracy; management principles relevant to clinical laboratory operations in technical, fiscal, work-flow and personnel areas; laws and regulations affecting clinical laboratory practice and personnel; and educational methodologies and evaluation strategies for educating others in a clinical laboratory setting. (Lecture/seminar hours 28, Laboratory hours 8)

CLSC 4319 INTRO TO MOLECULAR DIAGNOSTICS 2 CREDITS

Instruction, seminars and student laboratory focus on the advanced study of the scientific knowledge and skills required for practitioners in the area of clinical molecular biology. Topics including nucleic acid chemistry, amplification and hybridization techniques. Mutations and basic genetics, molecular biology laboratory techniques and clinical diagnostic applications (Lecture/seminar hours 25; Laboratory hours 12).
MLSC 4390 TOPICS IN MEDICAL LABORATORY SCIENCE 1 CREDIT

This course is an exploration of professional, ethical, and legal issues affecting the practice of clinical laboratory science. Students will further develop writing and oral communication skills, team building skills, and develop personal career goals and a career plan. Development and oral presentations of a CLS review session with appropriate behavioral objectives and educational assessment and a comprehensive exam in clinical laboratory science is required. (Lecture hours 18)

MLSC 4489 INDEPENDENT STUDY 3 CREDITS

Instruction, seminar and independent study cover an introduction to research theory and design, evidence based laboratory medicine, search and critical analysis of articles from the scientific literature, clinical case studies and disease correlation, and effective scientific writing and oral presentation. A paper, oral presentation, and poster presentation is required. Prerequisite: MLSC 4310 (Lecture hours 24; Directed independent study hours 70)

MLSC 4429 CLINICAL PRACTICE IN HEMATOLOGY AND URINALYSIS 2 CREDITS

Students practice manual and automated routine and complex analytical procedures in hematology and urinalysis such as complete blood count, coagulation studies, staining procedures, and physical, chemical and microscopic analysis of urine at an affiliated clinical facility. Emphasis is placed on accuracy in test performance, use of instrumentation, interpretation of results and application of theoretical principles to clinical laboratory situations. Prerequisites MLSC 2119, MLSC 2129 and MLSC 2169 (Clinical Practice hours 192)
MLSC 4449 CLINICAL PRACTICE IN CHEMISTRY      2 CREDITS

Students practice manual and automated routine and complex analytical procedures in clinical chemistry such as electrophoresis, immunochemistry and automated clinical chemistry analyzers at an affiliated clinical facility. Emphasis is placed on accuracy in test performance, use of instrumentation, interpretation of results, problem solving and application of theoretical principles to clinical laboratory situations. Prerequisites MLSC 2119 and MLSC 2249 (Clinical Practice hours 192)

MLSC 4439 CLINICAL PRACTICE IN IMMUNOHematology & IMMUNOLOGY      2 CREDITS

Students practice routine and complex analytical procedures in immunohematology and clinical immunology such as blood typing, multiple antibody identification, blood component preparation and immunologic testing for infectious and autoimmune diseases at an affiliated clinical facility. Emphasis is placed on accuracy in test performance, use of instrumentation, interpretation of results, problem solving and application of theoretical principles to clinical laboratory situations. Prerequisites MLSC 2119, MLSC 2239, and MLSC 2159 (Clinical Practice hours 192)

MLSC 4479 CLINICAL PRACTICE IN MICROBIOLOGY      3 CREDITS

Students practice microbiology procedures such as detection, isolation and identification of common and selected unusual microbial isolates and antimicrobial susceptibility testing at an affiliated clinical facility. Emphasis of instrumentation, interpretation of results and application of theoretical principles to clinical laboratory situations. Prerequisites MLSC 2119 and MLSC 4279 (Clinical Practice hours 192)
To learn more about the MLS Program and Discipline Specific Certificate or attend a campus tour contact:

Dr. Deborah Josko, Assistant Program Director  
908-889-2422 e-mail: joskotda@umdnj.edu

Application forms for matriculation in the MLS Program may be obtained at:

UMDNJ-SHRP, Office of Enrollment Services, Stanley S. Bergen Building, Room 149, 65 Bergen Street, Newark, NJ 07107, (973) 972-5454, or you may download an application form at:

http://shrp.umdnj.edu/prospective_students/documents/Application12-21-10.pdf