MEDICAL TECHNOLOGY PROGRAM HANDBOOK

COLLEGE OF STATEN ISLAND
CITY UNIVERSITY OF NEW YORK

DEPARTMENT OF BIOLOGY
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INTRODUCTION

The purpose of this handbook is to introduce the College of Staten Island's Medical Technology students to the program’s educational goals and functional qualities and characteristics.

The Bachelor of Science Program in Medical Technology at the College of Staten Island is a 4-year, 128-credit program of a combination of on-campus course work and 6 months of clinical training. Clinical training may be completed at any of our affiliate hospitals in Staten Island, Brooklyn, or Queens, New York.

MISSION STATEMENT

The Medical Technology Program at the College of Staten Island is designed and conducted to enable graduates to perform routine and advanced clinical laboratory tests.

Our graduates will be able to influence laboratory-based decisions based on educational, technical and professional training and to thereby contribute to the quality of health care services.

Graduates of the Medical Technology Program will be prepared to sit for entry-level national certification examinations in the discipline and will be prepared to practice as ethical and competent professionals.
PROGRAM GOALS

- To provide a comprehensive learning experience to students in the field of Medical Laboratory Science;
- To ensure that students graduate with skills that allow them to become responsible professionals as they perform procedures with precision and accuracy;
- To ensure that graduates have the skills in manual procedures to be able to succeed in large institutions as well as point of care testing sites;
- To provide students with the appropriate knowledge to qualify for national certification examinations.

MEDICAL TECHNOLOGY PROGRAM OFFICIALS AND FACULTY

PROGRAM DIRECTOR:  Abdeslem El Idrissi, Ph.D.
Room 6S-143
718-982-3863
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Hisham Aly, MPH – NYCH
Aman Salah, MLS, BS – IMC
Femina Mazzella, M.D. - ECL
Sadia-Malik Sheikh, MBA – IDL

Acronyms:

CSI/CUNY: College of Staten Island/City University of New York
CUMC/NYPH: Columbia University Medical Center/New York Presbyterian Hospital
ECL: Empire City Laboratories
EHC: Elmhurst Hospital Center
HH: Harlem Hospital (Affiliated with Columbia University)
HUMC: Hackensack University Medical Center
IDL: InterScience Diagnostics Laboratory
IMC: Interfaith Medical Center
MSKCC: Memorial Sloan Kettering Cancer Center
NW/LIJ: Northwell Systems/Long Island Jewish Hospital
NW/SIUH: Northwell Systems/Staten Island University Medical Center
NYCH: New York Community Hospital
NYU-LMC: New York University-Lutheran Medical Center
MEDICAL TECHNOLOGY PROGRAM
TECHNICAL STANDARDS

The technical (non-academic) standards established by the program are evidence of the “essential functions” that the students must be able to accomplish in the program. Essential functions include requirements that students be able to engage in educational and training activities in such a way that will not endanger other students or the public as described in STANDARDS and FUNCTIONS. As a general rule, students must be guided through all steps of the procedure under the strict supervision by qualified lab instructors both in didactic on-campus lab classes and clinical training sites.

<table>
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<th>STANDARDS</th>
<th>FUNCTIONS</th>
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<tbody>
<tr>
<td>a. Vision</td>
<td>The student must be able to read charts and graphs, read instrument scales, discriminate color, read microscopic materials, and record results.</td>
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<tr>
<td>b. Speech and hearing</td>
<td>The student must be able to communicate effectively and sensitively in order to assess non-verbal communication and be able to adequately transmit information to all members of the health care team.</td>
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<tr>
<td>c. Fine motor functions</td>
<td>The student must process all skills necessary to carry out diagnostic procedures, manipulate tools, instruments and equipment. Phlebotomy skills may be required.</td>
</tr>
<tr>
<td>d. Psychological Stability</td>
<td>The students must possess the emotional health required for full utilization of the applicant’s intellectual abilities. Must be able to recognize emergency situations, and take appropriate actions</td>
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OVERALL COURSE OBJECTIVES

The major course objectives for completion of the Medical Technology didactic portion at the College of Staten Island are that the students will:

1. Have studied each subject thoroughly through assigned reading in all required texts and supplementary literature provided for each subject.

2. Be responsible for the entire course content, that is, lecture and laboratory assignments.

3. Demonstrate attainment and retention of subject knowledge by successful performance on written and/or practical examinations.

4. Demonstrate the ability to solve problems by relating didactic information with practical laboratory application. This must be accomplished by solution of written problems in one of the following areas:
   a) application of standard methodologies and techniques to handle routine and unusual specimens;
   b) selection and performance of quality control procedures;
   c) troubleshooting with instrumentation and analyzers;
   d) integration of facts associated with disease states and correlation of individual subject areas in order to assess diagnostic criteria.

5. Have synthesized and organized segments of knowledge into a unified whole.

For example: performing a dilution using the proper safety and quality control, instruments, methods, and interpreting the result.

6. Demonstrate by passage of written examination, practical examinations, laboratory exercises, case study completion and comprehensive final examination, that they can judge the value of ideas and the usefulness of procedures and methods employed and the appropriate criteria in the analysis of clinical laboratory specimens.
The Medical Technology program at CSI strives to maintain a *Code of Ethics* for all students and evaluates laboratory expertise and skills attained as entry level Medical Laboratory professionals.

All students completing the Medical Technology program will be able to:

1. Demonstrate and routinely practice acceptable conduct in the professional setting and value their appearance by choosing to wear the proper professional attire.

2. Illustrate good rapport, communication and interactive skills when discussing matters of mutual interest with hospital staff, physicians and supervisory personnel.

3. Value the confidentiality of all test results related to the clinical diagnosis and care of patients.

4. Organize and plan the workday to increase the level of professional proficiency in the performance of laboratory science procedures while maintaining efficiency and quality.

5. Judge and evaluate the laboratory results obtained, verifying their reliability.

6. Assess the importance of laboratory determinations by applying the educational methodologies and theories to the interpretation of laboratory test and the results obtained.

7. Relate professional behavior, kindness and empathy to patients and other laboratory personnel to establish a relationship which demonstrates confidence in clinical performance.

8. Evaluate personnel behavior and conduct recognizing the highest degree of honesty and integrity with all laboratory testing.

9. Manage personnel behavior and conduct so as to maintain adaptability in action and attitudes while in the professional setting.

10. Create and establish cooperative interactive skills with fellow students entering the Medical Technology profession.
11. Plan on educating individuals outside of the profession about the technical expertise and skills required to fulfill competency as a clinical laboratory scientist.

12. Value education in medicine as being continuous by seeking participation in in-service and professional seminars in the Clinical Laboratory Sciences.

13. Manage or handle possible laboratory test errors by:
   a. Determining how the error occurred
   b. Choosing to repeat the test in error.
   c. Identifying how the error can be avoided in future testing.
   d. Comparing the results following the recognized errors to assure the reliability of the remaining test results.

14. Determine personal initiative through:
   a. Developing optimal use of any free time.
   b. Providing assistance to others in the laboratory setting whenever needed.
   c. Reviewing and relating relevant literature to the laboratory setting.

15. Formulate interpersonal relations with others including:
   a. Developing good interpersonal skills.
   b. Utilizing proper language in communicating.
   c. Recognizing the proper chain of interaction in the clinical setting with laboratory personnel, staff and patients.

16. Assess the interest in the profession of Medical Technology by emphasizing:
   a. Values of continuing medical education.
   b. Organization and importance of a laboratory work schedule.
   c. Relationships between theory and practice with techniques used in the analysis of clinical specimens.

17. Evaluate ethical behavior by:
   a. Recognizing the confidentiality of test results.
   b. Demonstrating a high degree of integrity, attitude, actions, and general personal conduct as a laboratory professional.
EVALUATION OF STUDENTS
AT THE COLLEGE OF STATEN ISLAND AND CLINICAL SETTINGS

Each MDT course presented in the Medical Technology Program at CSI will be evaluated for grading using the following criteria, where appropriate:

1. Written examinations which include problem solving
2. Laboratory presentation or demonstration to the class of exercise and techniques
3. Laboratory reports
4. Case studies
5. Colored slides, power point, and audio visual examinations

Course completion at the college involves:
1. Successful passing grades on all quizzes per course
2. Successful mastery of practical examinations where appropriate
3. Submission of laboratory reports for grading
4. Successful completion of midterm and final exams

Course completion at Internship (Clinical Rotation) sites involves:
1. Oral examinations
2. Written examinations
3. Projects, unknowns, blind controls, quality control surveys, trouble shooting
4. Performance of all learning objectives outlined in the Medical Technology Training Guidelines.

MEDICAL TECHNOLOGY TRAINING GUIDELINES

Clinical Training in Medical Technology

Instructor: Affiliation Supervisors

Pre-requisites:
Students must have successfully completed all other requirements for graduation and have a GPA of at least 3.0 in Medical Technology courses, have an overall GPA of at least 3.0 and permission of the Medical Technology Program Director.
Course Description

The students will rotate through all of the following seven laboratory sections: Hematology/Hemostasis, Immunohematology, Clinical Chemistry, Urinalysis/Body Fluids, Microbiology, Parasitology/Mycology, and Immunology. They will also observe Molecular Diagnostics procedures, if available. Additional areas of the lab, such as Histology and Phlebotomy, are at the discretion of the affiliate and are encouraged.

Attendance

During clinical internship status, it is of utmost importance that the student notify their educational coordinator at the affiliation site if an absence or lateness is anticipated. Punctual attendance and participation in all clinical rotations are essential and required.

Learning Objectives

During the course of Internship and at the conclusion of the clinical study process, the student will be able to:

- Describe the process of specimen collection, transportation, and processing.
- Define clinical significance of abnormal values.
- Discriminate between operating principles of assay systems.
- Summarize quality assurance and quality control methods.
- Describe methods for proper maintenance of automated instruments.

SKILLS

I- Immunohematology (Blood bank)

1. Prepare 2%, 5%, 10% RBC suspensions
2. Perform ABO typing (forward and reverse typing)
3. Read and grade agglutination reactions as well as identify hemolytic reactions
4. Resolve ABO discrepancies
5. Perform Rh and Du typing
6. Perform Direct and Indirect antiglobulin tests
7. Review prenatal and obstetrical testing procedures
8. Perform antibody screening procedures
9. Perform compatibility testing for purpose of transfusions
10. Perform antigen typing
11. Review transfusion reaction work-up
12. If available:
   • Process blood donors
   • Prepare blood components
   • Review blood inventory
   • Issue blood, components, albumin, RhIg
   • Review blood bank Quality Control procedures

II- Hematology/Coagulation
   1. Review proper collection and transportation of specimens
   2. Review use of laboratory Information System
   3. Maintenance procedures for automated equipment. Use of controls and calibrators
   4. Quality Control as it applies to hematology and coagulation automated instruments
   5. Types of reagents used in automated instruments
   6. Perform laboratory procedures on automated instruments in Hematology and Coagulation
   7. Prepare and satin blood smears for microscopic examination
   8. Perform differential counts on Wright’s stained peripheral blood smears
   9. Perform manual body fluid counts (other than blood)
   10. Perform tests other than automated and discuss significance of abnormalities in:
       • Reticulocyte count
       • Sickle cell preparations
       • Erythro sedimentation rate
       • Platelet counts
       • Hemoglobin electrophoresis
   11. Review cytochemical staining procedures
   12. Observe bone marrow procedures

13. Discuss the principles and use of reagents for coagulation testing procedures such as:
    • Prothrombin time (PT)
    • Partial Thromboplastin time (APTT)
    • Fibrinogen levels
    • Fibrin split products
    • D-dimer
    • Factor assays
    • Review, perform urinalysis procedures

III- Clinical Chemistry/Urinalysis/Body Fluids
   1. Safety regulations, including proper specimen handling
   2. Laboratory Information System
   3. Discuss criteria that would render a specimen unacceptable for testing
4. Identify types of analyses that make up the following profiles:
   - Cardiac
   - Liver
   - Renal function
   - Lipid
   - Thyroid
   - Iron studies

5. Quality Control and Quality Assurance programs

6. Trouble-shooting equipment failure

7. Calibration procedures for automated equipment

8. When available, review determinations of
   - Therapeutic Drugs,
   - Toxicological Studies,
   - Radioimmunoassay (RIA)

9. Chemical testing in body fluids (other than blood)

10. Identify and recognize importance of panic values

### IV- Microbiology/Parasitology/Mycology

1. Methods and collection of specimens
2. Techniques for safely handling and disposing of infectious material
3. Perform staining procedures and describe significance for stains such as:
   - Gram’s stain
   - Acid-fast stain
   - India ink preparation
   - Trichrome stain
4. Identify different types of media for the isolation of pathogens that may be found in submitted specimens
5. Study colony characteristics of pathogens and normal flora grown
6. Study microscopic characteristics of pathogens
7. Discuss anaerobic microbiology
8. Perform bacterial stereotyping
9. Perform susceptibility testing

### V- Immunology

1. Syphilis serology: Students should observe and perform all maintenance and troubleshooting procedures in addition to instrumentation quality control and accurate testing result interpretation at the training site
2. Students shall receive four samples to test one of the unknown analytes performed at the training site: antinuclear antibodies, anti-streptolysin O, hepatitis, HIV 1 & 2, rheumatoid factor, measles, mumps, rubella, endocrine or reproductive endocrine.
3. Unknown samples can be tested for one of the analytes or procedures performed at the training site: HCG (serum or urine), Quick HIV 1 & 2,
fluorescent antibodies, agglutination, precipitation, complement fixation, immunofixation, monospot, or electrophoresis.

VI- Molecular Diagnostics
When available, observe Molecular Diagnostic procedures.

Grading Criteria
The affiliation site must submit to the Medical Technology Program Director a form depicting the student's quality and quantity of work, work habits, personal relations, adaptability, and technical skills. This form can be provided upon request. A letter grade is to be submitted to the Program Director of by the affiliates' Laboratory Managers at the end of each semester after testing and consultation with section supervisors.

THE GRADING POLICY

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<tr>
<th>Grade</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>A</td>
<td>90-100%</td>
</tr>
<tr>
<td>A-</td>
<td>88-89%</td>
</tr>
<tr>
<td>B+</td>
<td>85-87%</td>
</tr>
<tr>
<td>B</td>
<td>80-84%</td>
</tr>
<tr>
<td>B-</td>
<td>78-79%</td>
</tr>
<tr>
<td>C</td>
<td>75-77%</td>
</tr>
<tr>
<td>C+</td>
<td>70-74%</td>
</tr>
<tr>
<td>D</td>
<td>60-69%</td>
</tr>
<tr>
<td>F</td>
<td>less than 60%</td>
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A grade of C or better is required in any major course.

GRADING REQUIREMENTS

The Medical Technology Program requires that a GPA of 3.0 be maintained to remain in the Program. An unsatisfactory performance during clinical rotations may necessitate removal from the clinical site.

ACADEMIC INTEGRITY

A grade of F will be assigned to any student confirmed of academic dishonesty.

GRADE APPEALS

Students wishing to appeal a grade other than WU or FIN must do so within 60 school days, excepting summer session, following the end of the semester. Appeals must be submitted in writing to the chairperson of the department in which the course was offered. Upon receipt of the appeal, the chairperson shall direct the student to discuss the issue with the instructor who assigned the grade. If the issue remains
unresolved, the student may request a review by the Department Committee on Grade Appeals.

This Committee on Grade Appeals shall review all information presented by the student and shall meet with the instructor. The committee shall render a decision within 30 days after the student requested the grade review by the committee because the student and instructor had not resolved the matter. If the committee upholds the appeal by a vote of 3-0, the chairperson shall change the grade to reflect the decision of the committee. If the committee does not uphold the student, there is no further appeal within the College.

In all deliberations on grade appeals, the burden shall be on the student to prove that a violation of the College's regulations occurred or that the instructor's own stated criteria for grading, which shall have been enunciated at the beginning of the semester, have not been followed. Students needing advice on the procedure may consult an academic and personal counselor.

Students wishing to have a WU or a FIN grade changed to a grade of W must file a written petition supported by documentation to the Committee on Course and Standing.

**COMMITTEE ON COURSE AND STANDING**

The Committee on Course and Standing is chaired by the Vice President for Academic Affairs or a designee; and its membership consists of the Registrar and one member of the faculty from each instructional department. In addition to reviewing student records, the Committee considers student appeals related to readmission, and graduation.

Students can petition the Committee through an appeals counselor in the Division of Student Affairs. The appeals counselors, whose names are available through the Registrar's Office, will advise the students in the preparation of their petition, which will then be referred to the Committee.

For more information, please visit the CSI website

**ATTENDANCE POLICIES**

1. Attendance is mandatory for the entire program; absences from lecture and/or laboratories are limited to 2 per semester. Missed laboratory work must be made up. Make-up examinations are at the discretion of the instructor.
2. Protracted illness (three consecutive days or more) must be accompanied by a doctor's note or other acceptable proof of absence. Any make-ups are at the discretion of the instructor or laboratory director. All deficiencies must be removed before the end of the semester, unless the student plans to repeat the course in a subsequent semester.

3. Attendance during clinical training is mandatory. If you are sick or have an emergency and must be absent, it is your responsibility to call in immediately to let the clinical training site know. Excessive absences will negatively impact your clinical training grade, and retention for your clinical training is at the discretion of the laboratory director or designee. Students who have been dismissed by the training hospital as a result of failing to abide by the required hospital policies, rules, and regulations shall be placed on academic probation. Reinstatement decision is subject to the discretion of the Medical Technology Program Director and the Health Science Committee of the Department of Biology.

**HEALTH POLICIES**

1. Every possible precaution is made to prevent health hazards at the college or in the Clinical Laboratory.

2. Students should have appropriate health care coverage.

**STUDENT INSURANCE**

All students in the Clinical rotation phase are required to purchase Medical Professional Liability. These forms are available in the Biology office, 6S-143. Students are responsible for their individual purchase of these policies. Copies are to be submitted to the Program Director prior to the start of clinical rotations. Certificates of insurance will be on file at the Biology office. Please be sure to have a copy of your Liability Insurance and bring it with you to the Clinical rotation Study.

4. A Health Examination form must be completed by each student before the start of the clinical Practicum. This form is to be completed by each student before the start of the immunizations received and documented and copies made for the file for presentation to the education coordinator at the clinical site. No one will be admitted to the practicum without this documentation.

   The health form requires:
   
   a) a physical and a declaration by your physician, that you are in good physical health and able to attend the practicum.
   
   b) A record of all immunizations must be present, to include Mumps, Measles, Rubella and serologic tests that show the titers present.
   
   c) A record of your Hepatitis vaccinations or a signed waiver
d) A recent (within 3 months) PPD check for tuberculosis. If there is a positive PPD, there must be an X-ray report to go along with it. Each clinical training site has specific forms to be completed. These will be presented to you upon interview.

5. During the clinical training, a student must avoid being absent unless necessary. The practicum in each area is two to six weeks, depending on the specific area of discipline and in general it is difficult to make up time when absent. Sick days should be used as needed. However, any abuse may result in your removal from the program. Physician’s notes may be required for extended absences. In the event of an absence, it is of utmost importance the affiliation site be notified.

**CLINICAL TRAINING AVAILABILITY:**

We are constantly working to add additional clinical affiliates to address the need of clinical training availability and quality.

**SERVICE WORK:**

The policy of the College of Staten Island's Medical Technology Program regarding service work is on a voluntary and non-compensatory basis.

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**THE COLLEGE OF STATEN ISLAND**

**DEPARTMENT OF BIOLOGY**

Bachelor of Science
Medical Technology

**Total Credits Required 128**

**Suggested course flow:**

I. Required Pre-Major Courses

- BIO 150 HUMAN ANATOMY & PHYSIOLOGY I (4 CREDITS)
- BIO 160 HUMAN ANATOMY & PHYSIOLOGY II (4 CREDITS)
- BIO 170 GENERAL BIOLOGY I (3 CREDITS)
- BIO 171 GENERAL BIOLOGY I LAB (1 CREDIT)
- BIO 314 GENERAL MICROBIOLOGY (4 CREDITS)
- MTH 123 COLLEGE ALGEBRA & TRIGNOMETRY (4 CREDITS*)
- MTH 214 APPLIED STATISTICS USING COMPUTERS or BIO 272 BIOMETRICS (4 CREDITS EACH)
- CHM 141 GENERAL CHEMISTRY I (3 CREDITS)
- CHM 121 GENERAL CHEMISTRY I LAB (1 CREDIT)
- CHM 142 GENERAL CHEMISTRY II (3 CREDITS)
• CHM 127 GENERAL CHEMISTRY II LAB (1 CREDIT)
• CHM 250 ORGANIC CHEMISTRY I (4 CREDITS)
• CHM 256 ORGANIC CHEMISTRY II (4 CREDITS)
• PHY 116 INTRODUCTORY PHYSICS I (4 CREDITS)
• PHY 156 INTRODUCTORY PHYSICS II (4 CREDITS)
• ENG 111 INTRODUCTION TO COLLEGE WRITING (3 CREDITS)
• ENG 151 COLLEGE WRITING (4 CREDITS)
• TEXTUAL, AESTHETIC & LINGUISTIC ANALYSIS (4 CREDITS)
• PHL 130 INTRODUCTION TO ETHICS (3 CREDITS)
• CORE 100 UNITED STATES ISSUES, IDEAS, & INSTITUTIONS (4 CREDITS)
• CORE 200 CONTEMPORARY WORLD / PLURALISM AND DIVERSITY (4 CREDITS)

II. Medical Technology Major’s Courses
• MDT 100 HEMATOLOGY (4 CREDITS)
• MDT 160 CLINICAL CHEMISTRY (4 CREDITS)
• CHM 240 ANALYTICAL CHEMISTRY (4 CREDITS)
• MDT 310 BLOOD TRANSFUSION TECHNOLOGY (4 CREDITS)
• MDT 316 CLINICAL MICROBIOLOGY (4 CREDITS)
• BIO 318 HISTOLOGY (4 CREDITS)
• BIO/MDT 325 DIAGNOSTIC MOLECULAR BIOLOGY (4 CREDITS)
• BIO/MDT 442 IMMUNOLOGY (4 CREDITS)
• MDT 371 CLINICAL PARASITOLOGY (3 CREDITS)
• MDT 372 MEDICAL MYCOLOGY (3 CREDITS)
• MDT 346 GENERAL VIROLOGY (3 CREDITS)
• MDT 375 MEDICAL TECHNOLOGY COMPREHENSIVE REVIEW (2 CREDITS)
• MDT 380 CLINICAL TRAINING (10 CREDITS)
• MDT 480 CLINICAL ROTATION SUMMARY PAPERS (3 CREDITS)
• MDT 384 LABORATORY OPERATIONS (2 CREDITS – distance learning)

NOTES: (1) * MTH 123 MAY BE WAVERED IF A STUDENT SUCCESSFULLY PASSED CUNY MATH ASSESSMENT TEST
(2) Graduation is contingent upon successful completion of the required 128 credits with a GPA of 3.0 or higher. Graduation is not contingent upon passing external examinations such as ASCP-BOC and the NYS MLS licensure exam.

MEDICAL TECHNOLOGY COURSE DESCRIPTIONS

1. MDT 100 (Hematology): 3 class hours, 3 laboratory hours; 4 credits:
   Introduction to the study of hematology with emphasis on the formation and function of normal blood cells; identification of normal and abnormal blood cell types, variations in blood picture associated with hematologic disorders, and hemostasis and coagulation. Laboratory practice includes complete blood counts, studies of peripheral blood and bone marrow smears, special tests for hematologic disorders, and basic coagulation procedures.
2. MDT 160 (Clinical Chemistry): 3 class hours, 3 laboratory hours; 4 credits: Introduction to clinical chemistry and fundamentals of body fluid and urinalysis. Emphasis on theory and practice of both manual and automated techniques used in clinical chemistry laboratories. Students will learn to operate the autoanalyzer, spectrophotometer, electrophoresis, and other instruments. Normal metabolism, abnormal metabolism, and the clinical significance of laboratory tests are also discussed. Special field trips are arranged to expose students to real-world hospital laboratory operations.

3. CHM 240 (Analytical Chemistry): 2 class hours, 4 laboratory hours, 4 credits. A study of the quantitative aspects of chemical changes, chemical equilibria, the stoichiometry and energetics of chemical reactions, theory and laboratory in volumetric, optometric, electrostatic, and kinetic methods of chemical analyses. Also included is an introduction to instrumental methods of analysis.

4. MDT 310 (Blood Transfusion Technology): 2 class hours, 4 laboratory hours; 4 credits: An introduction to the nature, significance, and distribution of blood groups antigens and antibodies; fundamentals of basic immunology, compatibility testing, and other procedures associated with a clinical blood bank. Laboratory practice includes duplicate testing for blood groups, cross-matching, antibody screening, hepatitis antigen testing, component preparation, and other significant tests.

5. MDT 316 (Clinical Microbiology): 2 class hours, 4 laboratory hours, 4 credits. With the focus on medical and diagnostic microbiology, this course is a study of host-microbe interactions, the principles and applications of immune response, the epidemiology of infectious disease, and the pathogenesis of the major microbial diseases. In the laboratory class, the procedures used in laboratory diagnosis are applied.

6. BIO 318 (Histology): 2 class hours, 4 laboratory hours, 4 credits. A study of the microscopic structure of the mammalian cells, tissues, and organs with emphasis on functional correlations. Laboratory sessions include technical procedures for fixing, sectioning, staining, and mounting tissue specimens, and examination of prepared microscopic slides of human/mammalian tissues and organs.

7. MDT 325 (Diagnostic Molecular Biology): 3 class hours, 3 laboratory hours; 4 credits. This course will address the theoretical and practical framework for the understanding and application of molecular biology techniques in the clinical laboratory. The course material will cover the principles and applications of recombinant DNA technology including DNA-DNA hybridization, DNA amplification and nonradioactive in situ hybridization (HISH) for the detection and identification of microorganisms associated with infectious diseases.

8. MDT 346 (General Virology): 3 class hours, 3 credits. A study of major groups of viruses which includes structural and biochemical characteristics, cell-virus interactions, and viral diseases.
9. MDT 371 (Clinical Parasitology): 3 class hours, 3 credits. As a survey of clinically relevant parasites, this course is designed to expose students to the identification and clinical relevance of a variety of microscopic and macroscopic vectors of diseases.

10. MDT 372 (Clinical Mycology): 3 class hours, 3 credits. A survey of morphology, cultural characteristics and taxonomy of pathogenic fungi and their role in human diseases.

11. MDT 375 (MDT Comprehensive Review): A required course for 2 class hours, 2 credits. A review of key concepts of each MDT disciplinary area with weekly practice tests to prepare MDT students to take the ASCP NYS Licensure Exam and the ASCP Certification Exam.

12. MDT 384 (Laboratory Operations and Management): 2 hours, 2 credits. A laboratory operations and management course to help prepare students for career advancement in the laboratory, beyond entry-level employment. Students will have a comprehensive understanding of principles of laboratory management, financial management, and strategies for career success.

13. BIO 442 (Immunology): 2 class hours, 4 laboratory hours, 4 credits. This course guides students through key components and interface of the two arms of immunity: innate and adaptive immunities. Special attention is given to antigen-antibody interactions, self- versus non-self distinctions, immune diseases, and immuno-oncology. The laboratory class is authentic-research based with emphasis on the role of cytokines in signaling pathways.

14. MDT 380 (Clinical Training): 6 months, 10 credits. This training course is administered at the program’s training hospitals. Students are to rotate, under the mentorship of certified and experienced laboratory supervisors, through all seven disciplinary areas in medical technology including blood bank, hematology, clinical chemistry, microbiology, parasitology/mycology, urinalysis, and immunology/serosology. At the end of rotation in each area, students are given a Proficiency Exam in which the three components of pre-analytical, analytical, and post-analytical procedures are emphasized. In addition, students are also given a rotation evaluation by respective lab supervisors. Attendance and punctuality are mandatory. All students are required to sign in and sign out daily, co-signed by the lab supervisor. The training schedule is to abide by the training hospital’s work schedule including holidays.

15. MDT 480 (Rotation Summary Papers): 3 credits. The purpose of this course is to provide an opportunity for students to thoroughly summarize their training experience. There are five required papers covering the following subjects: Blood Bank, Hematology, Microbiology/Parasitology/Mycology, Clinical Chemistry/Urinalysis, and Immunology/Serosology. Students are requested to discuss their mastery of the three components of pre-analytical, analytical, and post-analytical procedures.
EVALUATION PROCESS

The faculty of the Medical Technology Program includes both university based faculty and clinical instructors located at the clinical affiliates. Instructors use a variety of criteria, as outlined earlier, for arrival at final grades. Instructors also use a variety of criteria, including exam grades and laboratory performance.

The students are provided with assessment forms at the end of each course for the purpose of providing personal appraisal of the courses and instructors. These evaluations are sent out and returned to the College of Staten Island’s administrative offices. These evaluations assist faculty in self-improvement of the course offered in the program.

All student evaluation forms are reviewed, statistics compiled and data presented for use in determining instructor effectiveness, difficulty of the class, and separate comments for self expression. The data is submitted to the department for use in reports for our program’s accreditation and improvement. In addition to student evaluations, we ask all faculty, both University based and at the Clinical sites, for evaluations of the courses and special needs they would like addressed. The Medical Technology Advisory Committee meets each academic year, and was put in place to address these issues, made up of faculty at CSI and clinical sites. Students are also provided the opportunity to evaluate training site via Clinical Training Site Survey and to evaluate the program via the Program Evaluation Form (For both forms, please refer to Forms & Documents listed on this website) at the end of clinical training. Any issues or complaints concerning didactic or clinical training are to be addressed by the Program Director who coordinates with the training hospital liaison and the Health Science Committee of the Department of Biology, CSI.

PROFESSIONAL ORGANIZATIONS

As student members of the various professional organizations, you may be eligible for scholarships and discounts for seminars and publications. We encourage our students to become active in the professional organizations. It is an excellent way to meet your peers, and keep up your continuing education.

PHONE NUMBERS AND ADDRESSES FOR ORGANIZATIONS

You can order the review books over the phone or web for the certification exams.

National Accrediting Agency for Clinical Laboratory Science (NAACLS)
E-mail: http://naacls.org
(773) 714-8880
Professional Liability Insurance

Professional Liability insurance is required for clinical training and can be purchased for about $35.00 per year. You can apply online and print out your policy the same day.

Allied Health Professional Liability
http://www.proliability.com/contact-us
or call 1-800-503-9230

YOU MUST SUBMIT A COPY OF YOUR INSURANCE POLICY TO YOUR ASSIGNED CLINICAL TRAINING EDUCATOR(S) AND TO THE MDT PROGRAM DIRECTOR AT THE COLLEGE OF STATEN ISLAND

Advisement

The College of Staten Island provides many student services, including general counseling, veterans counseling, career services, tutoring, student support services and services for students with disabilities. Students and advisors are encouraged to discuss any academic or personal issues, which may affect the student’s performance. Please visit CSI’s website for more information.
STUDENT CONTACT INFORMATION

It is the responsibility of the student to inform the Director of the Program of any changes in address, phone number and/or email address within one business week of the change. The students should contact the Biology office at 718-982-3850 with these changes to be made to their file.
LETTER OF INTENT

It is necessary for all students to read and sign a Letter of Intent depicting that he/she has read and understood the rules and regulations of the College of Staten Island and affiliated hospitals (see below).

LETTER OF INTENT

Student Name________________________________

As soon as you return one copy of this letter of intent, signed by you to indicate that you have read the essential functions and understand and accept the conditions, you will be officially accepted into the Medical Technology Program and under consideration for clinical training.

I AGREE TO SERVE to the best of my ability for the time specified, and to abide by the RULES AND REGULATIONS of the College of Staten Island and/ or any of the affiliated hospitals I may attend as part of this program.

The Director of the Medical Technology program will be meeting throughout the internship period to evaluate each student’s performance, attendance, punctuality, and commitment to the program.

SIGNED: ________________________________ DATE: ____________________

NOTE: PLEASE RETURN TO THE MEDICAL TECHNOLOGY PROGRAM DIRECTOR OR THE BIOLOGY OFFICE IN ROOM 6S-143

DATE RECEIVED: ____________ SIGNED: ________________________________