



**Medical and Molecular
Sciences Department**

**MEDICAL DIAGNOSTICS
STUDENT HANDBOOK**

Department of Medical and Molecular Sciences 305 Willard Hall Education
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Administration

These policies were adopted in order to facilitate the success and ensure the welfare of students in the Medical Diagnostics major and in their future careers. Feel free to contact the Program Director if you have any questions concerning Department policies.

Please indicate your understanding of these policies by **signing** on the indicated space on **page 9** and **returning a copy of the signed student signature page to Mrs. Jodi Allen by either email or mail using the address below**. Please **return** the signed signature page by **June 30th**. Keep a copy of the document for your records.

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Mission Statement

The Department of Medical and Molecular Sciences is committed to providing skilled, critically-thinking practitioners equipped to be future leaders in health sciences. In this pursuit, the Department is committed to active engagement of undergraduate and graduate students in experiential learning, to forming collaborative partnerships with educational, clinical, industrial and research experts locally and globally, to discovering innovative breakthroughs in research that contribute to the health and basic sciences body of knowledge, and to functioning as an expert resource regarding all issues related to Medical and Molecular Science.

Goals and Competencies

It is the goal of the University of Delaware to encourage students to achieve their highest standard of scholarship and to help them assume responsibility for developing and achieving their own goals and objectives. In accordance with this, the primary educational goals of the Department of Medical and Molecular Sciences are to provide students with an excellent comprehensive education in medical diagnostics leading to a baccalaureate degree, to prepare students to function in professional positions as practitioners for the healthcare environment of the 21st century, and to prepare students to be life-long learners so as to remain current with advances in medical science.

The curriculum design assures student-oriented instruction in the pathology of disease and the theory of diagnostic laboratory procedures. The capstone course, MMSC 462, Interprofessional Healthcare Perspectives, is a continuum of this specialized, medical education and is designed to broaden the student's education and experience. This approach to medical education enables students to graduate from the University prepared to enter the healthcare profession or professional and graduate schools.

The Medical Diagnostics major's educational objectives, listed below, encompass each area of laboratory services including clinical chemistry, hematology, hemostasis, immunohematology, immunology, microbiology, molecular diagnostics/genetics, urinalysis and body fluids analysis. To accomplish the educational goals of the program and some of the general education goals of the University, the curriculum incorporates cognitive competencies. After successfully attending lectures and completing assignments, the student will be able to:

- Utilize scientific principles (e.g., physiology, immunology, biochemistry, genetics, microbiology, etc.), laboratory principles, and methodologies as they apply to the clinical and medical settings.
- Interpret accurately laboratory test data and determine their clinical significance.
- Communicate, through oral and written skills, effectively and professionally to enable consultative and educational interactions with healthcare personnel, the public, and patients in order to function successfully as a member of the healthcare team.
- Demonstrate ethical behavior and professionalism, maintain confidentiality of patient information, and participate in continuing education for one's own professional career development.
- Develop skills and knowledge to become life-long learners.
- Evaluate published scientific studies utilizing knowledge of research design.

General Education Goals of the University

After successfully attending lectures and completing assignments in the liberal arts courses, the student will be able to:

- Read critically, analyze arguments and information, and engage in constructive ideation.
- Communicate effectively in writing, orally, and through creative expression.
- Work collaboratively and independently within and across a variety of cultural contexts and a spectrum of differences.
- Critically evaluate the ethical implications of their words and actions.
- Reason quantitatively, computationally and scientifically.

Essential Functions

As a Medical Diagnostics major, you have chosen to pursue a healthcare profession, where honesty and integrity are critical personal characteristics required both in academic studies and in the practice of the medical profession. Successful students are self-sufficient, problem-solvers who like the challenge and responsibility that careers in healthcare provide. In order for graduates to maintain their competence, they need to be life-long learners. As a Medical Diagnostic student, you must develop skills and techniques to locate reliable information and to be self-learners. The principles that embody the Essential Functions are applicable to the many career opportunities that exist in healthcare. Physicians, physician assistants, dentists, optometrists, etc. need to possess the same qualities that are detailed in the Essential Functions including but not limited to manual dexterity, good eye-hand coordination, safe utilization of equipment, accuracy, maintaining composure in stressful situations, utilizing independent judgment, exercising good communication skills, demonstrating ability to comprehend scientific and medical information, and maintaining patient confidentiality. The Essential Functions are comprised of emotional and professional/intellectual demands and are the expectations for a student who plans to pursue graduate or professional school upon graduation.

The *emotional demands* required of students include the ability to:

1. Maintain composure and professionalism while providing appropriate services under stressful situations, such as time constraints, emergencies, rudeness, etc.
2. Utilize independent judgment and act logically in the performance of one's duties.
3. Organize and accept responsibility for one's work, including acknowledgement of errors or uncertainty and acceptance of constructive criticism.
4. Employ sufficient psychological stability to consistently and dependably utilize critical thinking in order to formulate and implement safe and ethical healthcare decisions in a variety of healthcare settings.

The *professional/intellectual demands* required of students include the ability to:

1. Communicate in a professional, positive, tactful manner with patients, physicians, nurses, and other healthcare and non-healthcare employees.
2. Communicate understandably, comprehend, and follow directions in English as evidenced by verbal, written, and reading skills.
3. Communicate, through the use of assistive devices (e.g., hearing aids, phone receivers, etc.) if needed, so as to converse understandably in English.
4. Maintain patient confidentiality and exercise ethical judgment, integrity, honesty, dependability, and accountability in the performance of one's responsibilities.
5. Demonstrate the intellectual skills required to comprehend scientific and medical information, perform mathematical calculations, analyze information, evaluate information, and use critical thinking skills to solve problems.
6. Maintain a well-groomed, neat, professional appearance.

Health and Safety Requirements

While not required in the undergraduate curriculum, many graduate educational programs that lead to healthcare careers, including those for physicians, physician assistants, dentists, optometrists, podiatrists, etc., require undergraduate students to experience the particular career by participating in clinically oriented activities. The number of clinical service hours performed and the type of facility in which the service is performed vary among the career options. Students should inquire about the clinical experience early in the freshman year to be sure that they meet the requirements of their chosen graduate education. The best way to obtain patient contact is by the student volunteering in a health-related environment such as a hospital, emergency department, ambulance corps, neighborhood clinic, physician's office, nursing home, etc.

- **Health Requirements**

To safeguard the health and safety of staff and patients when performing educational activities in the clinical setting, students may be required to have a routine physical examination before the start of volunteer activities. The physical examination provides verification that the student appears to be free from disease or any impediment which would interfere with normal activity, study, or physical effort.

- **Immunizations**

Before starting clinical activities, students may be required to have specific testing and/or immunization (or documentation thereof) for hepatitis B virus, tetanus, measles (rubeola), mumps, and rubella (MMR), varicella (chicken pox), influenza and tuberculosis (2-step PPD tuberculin skin test or QuantiFERON® test). Students might be required to submit documentation of immunity as evidenced by positive immune titers for several of these diseases. For the safety of patients, healthcare institutions have the right to refuse student participation, if the student is unwilling to comply with immunization requirements.

Healthcare personnel are among those at increased risk for acquiring hepatitis B virus infection due to their frequent contact with human blood and other body fluids. A student who wishes to be immunized may receive the injections from his or her primary care provider. **Such immunizations should begin at least six months prior to volunteer activities.** Alternatively, the vaccine is available through Student Health Services paid for by the student. The vaccine is administered as a series of three injections given at appropriate intervals over a six-month period. If a student has been vaccinated previously, most hospitals will require a blood test to determine antibody titer to the hepatitis B virus or an additional booster.

- **Drug Screening, Criminal Background Check, and Other Requirements**

Before starting clinical activities, a student may be required to complete a urine drug screening and a criminal background check. There are some requirements that may be specific to certain healthcare institutions, including but not limited to: child abuse registry investigation and adult abuse registry investigation. For the safety of patients, healthcare institutions reserve the right to request a urine drug screening and such criminal/abusive background checks at the commencement of clinical activities.

- **Important Note**

Students should be aware that results from the criminal background check, urine drug screening, child abuse registry investigation, and adult abuse registry investigation could prevent the student's ability to participate in clinical activities at healthcare institutions. In addition, candidates applying for employment in healthcare are typically required to undergo a criminal background check and urine drug screening. Each student should use sound judgment and avoid situations which could result in poor decisions. Failure to do so could jeopardize the student's ability to complete graduate medical education or secure health profession employment, thus impacting future career goals in healthcare.

Academic Requirements

- **Course Checklist**

PRE-REQS

<u>Course</u>	<u>Cr</u>
ENGL110	3 _____
MATH221 or 241 Calculus I	3 _____
BISC207 Intro Biology I	4 _____
BISC208 Intro Biology II	4 _____
BISC300 Intro to Microbio	4 _____
CHEM103 or 107 Gen Chem	4 _____
CHEM104 or 108 Gen Chem	4 _____
CHEM321/325 Org Chem I	4 _____
CHEM322/326 Org Chem II	4 _____

MAJOR COURSE REQUIREMENTS

<u>Course</u>	<u>Cr</u>
MMSC100 Intro to MLS	1 _____
MMSC200 Language of Med	3 _____
MMSC360 Clin Immuno/Vir	3 _____
MMSC402 Body Fluid Analys	1 _____
MMSC407 Clin Phys Chem I	3 _____
MMSC436 Clin Phys Chem II	3 _____
MMSC423 Hematology I	2 _____
MMSC433 Hematology II	2 _____
MMSC409 Immunoheme I	2 _____

BISC276 Human Physiology*	4 _____	MMSC420 Immunoheme II	2 _____
PHYS201/202 Intro Physics1/2*	8 _____	MMSC428 Medical Micro	3 _____
OR		MMSC438 Diag Bact/Myc	2 _____
KAAP309/310 Human A&PI/2**	4 _____	BISC401 Mol Bio of Cell	3 _____
CHEM214 Elementary Biochem	3 _____	AND	
OR		BISC403 Genetics	3 _____
CHEM527 Intro Biochem	3 _____	OR	
UNIV First Year Experience	1 _____	MMSC490 Clin/Mol Diag	3 _____
		MMSC491 Human Genetics	3 _____
		STAT200 Basic Stat Practice	3 _____
		OR	
Circle MATH Course Completed		STAT408 Stat Research Meth	3 _____
Complete CHEM213/215 and CHEM214/216 <u>OR</u>		MMSC462 IHP	3 _____
CHEM321/325 and CHEM322/326 and CHEM214+			

*Recommended for Professional school/ ** Recommended for PA school

- **Grading**

Students must obtain a grade of C- or higher in each of the Department of Medical and Molecular Sciences (MMSC) courses to progress in the Medical Diagnostics major. A grade of C- requires attainment of a minimal grade of 70%. Grades are not curved and Medical and Molecular Sciences courses are offered only once a year. To avoid problems that may impede progression in the major, a student who finds themselves in academic difficulty is encouraged to seek assistance from the Office of Academic Enrichment and the Center for Counseling and Student Development. NOTE: In accordance with University policy, courses taken at another institution must be graded C or better to transfer, i.e., a grade of C- is not acceptable for transfer.

See <http://www.udel.edu/registrar/transfer/transins.html>.

- **Lecture Attendance**

Attendance at all Medical and Molecular Sciences lectures is highly recommended. Individual faculty might require attendance. The student must abide by the regulations set forth in each Medical and Molecular Sciences course, so the student should consult the policy contained in each course manual. In general, absence from class due to illness, death of a family member, a personal emergency, participation in university-related events or observance of a religious holiday will constitute cause for an excused absence. Examples of unexcused absences include but are not limited to scheduling routine medical and dental appointments, expanding spring break beyond its allotted time, or scheduling other travels for personal reasons.

- **Computerized Testing**

The Department of Medical and Molecular Sciences utilizes computerized assessment and assessment administration (e.g. ExamSoft) to administer examinations. In several Department courses, students will be required to bring a laptop or tablet to the classroom to participate in testing.

- **Student Grievances and Disciplinary Action**

Honesty and reliability are essential in the medical profession, and these qualities are emphasized in all of the undergraduate professional courses. Any incidence of personal misconduct, suspected cheating on an examination, plagiarism, or any other form of academic dishonesty by a student will be communicated to the Office of Student Conduct. If warranted, the incidence may be adjudicated by the Undergraduate Student Conduct System. Determination of misconduct may result in an F in the course and automatic dismissal from the Medical Diagnostics major.

Student grievances are handled according to the policies of the Department of Medical and Molecular Sciences, the College of Health Sciences, and the University at large. Students should refer to the *University of Delaware Student Guide to University Policies* for detailed information on academic and non-academic grievance procedures (available at <http://www.udel.edu/stuguide/current>).

Professional, Doctoral and Physician Assistant School Requirements

- **Academics**

A minimum MDD program entrance GPA of 3.0 is strongly recommended for students considering professional (medical, dental, optometric, podiatric), doctoral or physician assistant schools. The recommended science prerequisites for professional schools include BISC 207, BISC 208, BISC 300, CHEM 103 or CHEM 107, CHEM 104 or CHEM 108, CHEM 321, CHEM 325, CHEM 322, CHEM 326 and the science sequence of BISC 276 and PHYS 201/PHYS 202 and either MATH 221 or MATH 241. These courses satisfy the admission requirements for most professional schools. *Students should review programs of interest to determine specific admission requirements and, in consultation with an advisor, adjust course plan accordingly.*

- **Health Professions Evaluation Committee**

A student whose educational goal is to attend a professional school should become familiar with the Health Professions Evaluation Committee (HPEC) no later than the junior year. *Please note, students pursuing graduate education as a physician assistant are not expected to open a file with this Committee.* HPEC is a University committee composed of University faculty and local physicians, who evaluate the credentials of perspective candidates for medical and dental school admission. A junior student must complete their HPEC pre-med file, be interviewed by two HPEC members in preparation for the University's evaluation of the student's record, and take the appropriate standardized admission exam, e.g., MCAT, DAT, or GRE. A student may open an HPEC file as early as the freshman year, most often during the sophomore year and no later than the junior year. For additional information about HPEC, refer to http://sites.udel.edu/healthpro/hpec_home.

- **Center for Health Profession Studies**

The Center for Health Profession Studies focuses on assisting students who are interested in careers in the health professions. The Center helps to assist students who want to pursue careers in medicine,

dentistry, optometry, podiatry, physician assistant, advanced practice registered nurse, pharmacy, physical/occupational therapy and other health profession programs.

For additional information about the Center for Health Profession Studies, refer to <https://sites.udel.edu/healthpro>.

Student Signature Page

It is the student's responsibility to read and understand the policies in this handbook.

MY SIGNATURE ATTESTS THAT I HAVE READ AND UNDERSTAND ALL OF THE POLICIES AND INFORMATION RELATED IN THE MEDICAL DIAGNOSTICS STUDENT HANDBOOK FOR PROGRESSION IN AND COMPLETION OF THE *MEDICAL DIAGNOSTICS MAJOR*.

WITNESS to Student's Signature Date

Student's Signature Date

Print Student's Name