

University of Medicine and Dentistry of New Jersey (UMDNJ)
Dual-Degree Program between the
UMDNJ Graduate School of Biomedical Sciences (GSBS)
And the
UMDNJ School of Public Health (SPH)
Leading to the:
Master of Biomedical Sciences and Master of Public Health

This program combines the educational and research strengths of the Graduate School of Biomedical Sciences (GSBS) with those of the School of Public Health (SPH) in a program that provides students with a strong knowledge of contemporary research methods and scientific foundations in both the biomedical sciences and public health.

Goals of the Program

The proposed program accomplishes several desirable goals for students interested in careers in biomedical science, clinical medicine and dentistry or public health. Many students who follow a program in basic biomedical science find themselves drawn to a career in the pharmaceutical, academic or public policy areas that involve public health issues. Similarly, some students who gain a degree in public health discover that they have inadequate preparation in the basic biomedical sciences. This dual degree program allows students to gain expertise in the fields of biomedical science and public health and thus produces graduates able to solve problems common to both fields and communicate effectively with the respective professional workforces.

Examples of the potential value of this program include public health workers who understand the molecular biology of a pathogen who will be in a better position to analyze effective measures to help control the pathogen. Likewise, basic research scientists, working in an academic, pharmaceutical or biotech environment who understand the epidemiology of a pathogen will be in a better position to design experiments to critically assess ways of immobilizing or destroying the pathogen.

Public health officials trained in this program will be academically grounded in biomedical science and will be better prepared to address the complex problems facing the public health workforce in New Jersey and in the nation. The program also benefits students interested in clinical careers by simultaneously preparing them for professional school while broadening their knowledge in public health, with the desired outcome of producing clinicians who are well trained in public health. It also allows students unsure of their career goals to explore their strengths and interests in basic science research and public health as they plan their professional paths.

Target Student Population

This combined degree program is directed towards individuals holding a baccalaureate degree in any discipline of study and who express an interest in public health. Applicants must have a background in biology, chemistry and physics. Undergraduate courses in biochemistry and molecular biology also would be useful, but will not be required. Some students may use the program as a terminal degree while others may use it as preparation to pursue the MD, DMD, PhD, or DrPH degrees. Positions that would find such a dual degree of benefit include:

- Urban governmental agencies
- State and Federal Departments of Health
- Non-governmental health organizations, such as the American Cancer Society, American Diabetes Association, American Heart Association, etc.
- Pharmaceutical/biotech companies

Program Description

Individually, the Master of Public Health degree program requires 45 credits and the Master of Biomedical Sciences degree program requires 30 credits. With approximately a 20% overlap of courses acceptable to each program, completion of the dual-degree program will require a minimum of 57 credits.

To complete this proposed combined degree, the Master of Public Health portion will require completion of 15 credits of a public health core curriculum and 15 credits of specialization in Quantitative Methods. This program will accept 9 elective credits in biomedical sciences from GSBS, which have direct relevance to public health. The Master of Biomedical Sciences part of the program will require 21 credits in the biomedical sciences, composed of two 3-credit mandatory "Fundamentals" courses Biochemistry and Molecular Biology and Cellular Biology; 1 credit of seminar and 2 credits of laboratory rotation; and four 3-credit elective courses in biomedical sciences, at least one of which has direct public health relevance; and the program will accept 9 credits of coursework from the SPH. An interdisciplinary research/practice fieldwork project of 6 credits will be required of all students in the program. A table is attached that displays the course requirements for the dual degrees.

The program will be offered to students who are enrolled either full-time or part-time. All courses included in this proposed program will be taken from courses currently offered by GSBS and SPH. In general, required courses will be completed in the first two semesters and the remaining coursework will be taken during the subsequent semesters. The anticipated length of the program is five semesters of fulltime study.

The SPH offers core and QM courses in the evening during the spring, fall and summer semesters. Students who are available to take courses during the summer are encouraged to do so if they wish to speed the completion of the program. Those who wish to begin taking SPH courses after acceptance into the dual degree program, but before matriculation in August, may take SPH course by contacting the Newark Campus SPH office and completing a "quick" admit application form.

The specific courses of specialization at GSBS will depend upon individual student's interests and background. Currently, students may use elective credits to focus their study in Pharmacological Sciences, Stem Cell Biology and Molecular Medicine, Biodefense or Bioinformatics. For the Master of Public Health degree program, students will major in Quantitative Methods, emphasizing Biostatistics, Epidemiology, Injury or Infectious Diseases. Other majors leading to the Master of Public Health degree may also be considered.

Program Benefits

The dual-degree program has specific benefits:

- It covers science and public health concepts necessary for those contemplating positions in the pharmaceutical or biotechnology industry.
- The knowledge gained from this program will allow graduates to communicate effectively throughout their organization and with peers in science and public health.
- The program can be completed in 2-1/2 years as opposed to 4 - 5 years for separate programs.
- The program will help prepare students who are interested in pursuing the MD or DMD to achieve a breadth of knowledge in basic science and in public health that will be a valuable asset in establishing their careers.

Admission to the Program

Applicants apply for the dual-degree program to both the Master of Biomedical Sciences (at the GSBS) and Master of Public Health in Quantitative Methods (at the Newark Campus of the SPH) programs. Students will submit separate applications for the dual degree programs to each school; the GSBS and the SPH will share parts of the application (e.g. the student's official transcript and letters of recommendation) whenever possible. Each school will determine the suitability of the application to the dual degree program. Students may apply to each school simultaneously. Alternatively, some students will already be matriculated at one of the schools and then decide to pursue the dual degree. Students in either school may apply to the other school for the dual degree at any time prior to the completion of their penultimate semester in the degree program for which they were originally admitted.

Admission into the dual Master of Biomedical Sciences/Master of Public Health program requires a strong score on the Verbal and Quantitative portions of the Graduate Record Examination (GRE) and a superior undergraduate academic record of achievement. GSBS also requires that applicants have a basic background in biology and chemistry.

Requirements:

The program requires a total of 57 credits with an overall "B" average and a research/public health practice project acceptable to both programs. The research/public health practice advisory committee will usually be composed of three members with representatives from both programs.

The Biomedical Sciences program requires 21 credits (6 credits in two 3-credit mandatory "Fundamental" courses: Biochemistry and Molecular Biology, and Cell Biology; 1 credit in seminar and 2 credits in a lab rotation; and four 3-credit elective courses in biomedical sciences). The Public Health program requires 30 credits including 15 for core courses and 15 credits of specialization. Six credits of interdisciplinary fieldwork are also required.

A list of available courses at the GSBS or SPH can be obtained at their respective web sites. The web address for the GSBS is: <http://www.umdj.edu/gsbnsweb> and the web address of the SPH is <http://sph.umdj.edu>.

TABLE OF THE PROGRAM		
School of Public Health -	30 Credits	Graduate School of Biomedical Sciences - 21 Credits
Required of all Biostatistics and Epidemiology Students		
Course #, Name (credits)		
PHCO 0501 - Health Care Systems and Policy (3)		CORE Required 1. Fundamentals 1: Biochemistry and Molecular Biology (3) 2. Fundamentals 2: Cellular Biology (3) 3. Seminar in Biomedical Sciences (1) 4. Research in Biomedical Sciences (2)
PHCO 0502 - Principles of Epidemiology (3)		
PHCO 0503 - Introduction to Environmental Health (3)		
PHCO 0504 - Introduction to Biostatistics (3)		
Students must pass the QSA to take PHCO 0504.		
PHCO 0505 - Health Education and Behavioral Science in Public Health (3)		
Note: Students should take PHCO 0502 and 0504 ASAP after entering the program (preferably in the fall) because they are pre-requisites for upper level QM courses.		
Public Health Core Credits	15 credits	Total Biomedical Sciences Core - Credits 9

<p>Public Health Specialization Courses Biostatistics Concentration Required Credits 15 credits QNME 0611 Design of Epidemiologic Studies and Clinical Trials(3) QNME 0612 Linear Models: Regression and ANOVA (3) QNME 0584 Computing II: EPI Info (1) QNME 0585 Computing I: Introduction to Microsoft Office (1) QNME 0583 Computing III: Using SAS (1 credit) Note: Students must take Computing I and III together. QNME 0614 Categorical Data Analysis (3) QNME 0613 Life Tables and Survival Analysis (3) ----- Public Health Specialization Courses Epidemiology Concentration Required Credits 15 credits 5 Required Courses: (9 credits) QNME 0611 Design of Epidemiologic Studies and Clinical Trials (3) QNME 0612 Linear Models: Regression and ANOVA (3) QNME 0584 Computing II: EPI Info (1) QNME 0585 Computing I: Introduction to Microsoft Office (1) QNME 0583 Computing III: Using SAS (1) Note: Students must take Computing I and III together. And students are required to take 1 of these 3 methods courses: (3 credits) QNME 0621 Survey Research Methods Questionnaire Design(3) QNME 0614 Categorical Data Analysis (3) QNME 0613 Life Tables and Survival Analysis (3) And Choose 1 Elective Course (preferably within QNME): (3 credits) Please note: a. Epidemiology students without a clinical background must take one course that provides the medical basis for the etiology and prevention of diseases of public health importance. b. Epidemiology students who choose to pursue one of the approved collateral programs (e.g. injury or infectious diseases) would take the approved collateral courses as part of their elective course work. This would increase the number of credits required for the dual degree.*</p>	<p>Biomedical Sciences Elective Courses – Credits 12 Choose four courses from: Stem Cell Biology & Appli in Molec Med Topics in Pharmacology Biological Terrorism & Weapon Mass Destruction* Topics in Neuroscience Molecules to Medicine Immunology Molecular Oncology Clinical Trials Overview*</p> <p>* At least one of the two asterisked courses should be included among the courses selected.</p>
<p>Total Didactic Course Credits Pubic Health - 30 credits*</p>	<p>Total Didactic Course Credits Biomedical Sciences - 21 credits</p>
<p align="center">Public Health Fieldwork and Biomedical Sciences Research – SPH course numbers FDWC 0600 (1) and FDWC 0601 (5) 6 credits</p>	
<p>Public Health - 30 Credits * Biomedical Sciences - 21 Credits Fieldwork/Research - 6 Credits</p>	<p align="right">Total 57 Credits</p>

February 4, 2009

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