MEDICINE, DOCTOR OF (M.D.)/ SOCIAL AND BEHAVIORAL SCIENCES, DOCTOR OF PHILOSOPHY (PH.D.) [DUAL DEGREE]

Graduate study in social and behavioral sciences in the School of Public Health is a highly individualized undertaking and required course work represents only one component. Each student's program is tailored to meet their particular interests, with the primary emphasis on developing research skills and the capacity for independent scholarship and with the recognition that career goals for many M.D.-Ph.D. physician-scientists are distinct from those of most Ph.D. trainees.

Program goals

The objectives of this dual degree program are:

- Students in the M.D.-Ph.D. program in social and behavioral sciences will acquire the foundational skills to allow them, after further clinical specialty and postdoctoral research training, to become scientists, educators and scientists/administrators in a broad spectrum of positions and settings. Program graduates ultimately pursue careers in academic medicine, government agencies, nonprofit agencies, research institutes, and industry as clinicians, scientists, educators and administrators.
- Students will gain a progressive mastery of the current state of the subject matter in the social and behavioral sciences, an ability to synthesize the information and apply this foundation to the identification of key areas of investigation/experimentation, and the ability to design and interpret studies that address the questions identified. They will gain an understanding of the current state of research investigations in the field, an ability to synthesize information and apply foundational concepts to identify key areas for innovative investigation and experimentation, and the knowledge to design, execute and interpret research studies employing a variety of methodologies (e.g., experimental and quasi-experimental, qualitative and mixed methods, randomized clinical trials). Students will receive formal and experiential training in community engaged research.
- Students will develop skills in science communication to a variety of audiences, including reporting back to study participants, publishing findings in peer-reviewed journals and disseminating findings to other key end users to enhance the overall impact of their scholarship.

Among the many benefits offered by participation in the dual degree program are the following:

- Students will have the foundation and training in social and behavioral sciences and in medicine to conduct basic, clinical and translational research that will enable them to take bedside observations to inform research and practice, as well as apply the results of research and practice to the bedside to advance both the underlying science and patient and public health.
- Students have the opportunity to participate in clinical research during the M4 year.
- Students with M.D.-Ph.D. training are highly competitive for positions in leading physician-scientist clinical training programs, faculty positions in academic medical centers and are well-positioned to ultimately take on leadership roles in academic medicine, industry and government.
- Tuition, fees and a stipend are provided throughout both the medical and graduate phases of training.

The diplomas for this dual degree program are awarded simultaneously upon completion of the requirements for both degrees.

Student learning outcomes

The student learning outcomes described on the social and behavioral sciences Ph.D. program page (https://sbs.vcu.edu/education/social-behavioral/) also apply to M.D.-Ph.D. students.

Admission requirements

To be considered for the VCU M.D.-Ph.D. program, prospective students must apply to the medical school through the American Medical College Application Service (https://students-residents.aamc.org/applying-medical-school/applying-medical-school-process/applying-medical-school-amcas/). Please designate "Combined Graduate/Medical Degree" on your AMCAS application. The deadline for application to the program for admission in the fall semester is listed on the AMCAS web site.

In rare situations when resources allow, students matriculated in the medical school class may be considered for admission to the M.D.-Ph.D. program, usually near the start of the M1 academic year. For additional details, see the M.D.-Ph.D. dual degree opportunities page (https://bulletin.vcu.edu/professional-studies/medicine/md-phd-opportunities/).

Degree requirements

The dual-degree program is designed to allow students to complete the first two-years of medical school and the USMLE Step 1 examination (M1, M2) before undertaking graduate training (G1 and subsequent years). After successfully defending the Ph.D. dissertation, students complete the remaining clinical years (M3, M4) of medical training. Nevertheless, important aspects of dual-degree training are integrated across the program. These include M.D.-Ph.D. specific graduate courses during M1 and M2 that supplement the medical curriculum and emphasize research and translational aspects of M.D. course topics and required M3 clinical rotations integrated into the graduate phase. Opportunities for research experience begin prior to entering the graduate phase (pre-matriculation and summers after M1 and M2), when students spend time working in several faculty laboratories of their choice. These laboratory rotations enable students to examine faculty research projects, experimental approaches and laboratory environments, and to select an area for specialization. After completing M2, students are required to take the USMLE Step 1 exam, followed by one or two required M3 clinical rotations lasting 6 to 8 weeks total. They then transition into graduate studies.

During the first two year of graduate training (G1 and G2), students take graduate courses selected to optimize their training and devote time to independent research under the guidance of a faculty adviser.

During G3 and subsequent years, most effort is devoted to independent research, as part of the course requirements are satisfied by the M1 and M2 M.D. curriculum (see below). On satisfactory completion of coursework, students must pass written and oral comprehensive examinations to qualify for degree candidacy. Candidacy examinations for the dual M.D.-Ph.D. are normally completed during G3. Following admission to candidacy, each student must conduct a substantial original research project, prepare a written dissertation, present their

work in a seminar and defend it successfully in an oral examination. Department-sponsored seminars and other activities give students opportunities to discuss their research interests with visiting scientists and to present their research both internally at national professional meetings.

The Ph.D. component of training in social and behavioral sciences for M.D.-Ph.D. students normally takes at least four years to complete. Courses taken during the M1 and M2 years of medical school satisfy a number of core course requirements, and additional elective courses are completed in the G1 year. M.D.-Ph.D. students, if eligible under NIH rules, are required to prepare and submit an NIH F30 predoctoral training grant application, which may be based on the dissertation proposal defended during the oral comprehensive examinations. Students also are encouraged to submit predoctoral training grant applications to other funding sources. Acceptance of a peer-reviewed first-author (or co-first-author) manuscript in a scientific journal indexed in PubMed or Web of Science that is based on experimental research conducted during Ph.D. training (rather than a review, commentary, case note or similar publication) is required of all M.D.-Ph.D. students prior to returning to the M3 phase of medical school.

In addition to completing VCU School of Medicine requirements for the M.D. degree and the general VCU Graduate School graduation requirements (http://bulletin.vcu.edu/academic-regs/grad/graduation-info/), students must complete a minimum of 54 credit hours for the Ph.D., including directed research. A cumulative GPA of 3.0 must be maintained. Students must receive a minimum grade of B for all required courses. A student who receives a grade of C in a required course shall repeat the course. A second grade of C in a required course may result in dismissal from the program. At the discretion of the SBS faculty, a student who is retaking a required course may still be eligible to take the comprehensive examination and to start the dissertation prior to repeating the course.

Curriculum requirements for the M.D.

Based on the equivalent knowledge acquired by successfully completing MEDI 100, MEDI 150, MEDI 200 and MEDI 250, IBMS 651 and 652 during the M1 and M2 years, and IBMS 653, 10 credits are satisfied (6 credits of electives, 4 credits of SBHD 690 department seminar). M.D.-Ph.D. students complete six credits of IBMS 697 (http://bulletin.vcu.edu/search/?P=IBMS%20697) in the summers after M1 and M2. Students are required to take additional credits of MD-PhD specific courses listed below. Courses taken to satisfy Ph.D. requirements do not satisfy M.D. requirements.

Course	Title	Hours
M1 year		
Fall semester (MEDI 100)		
Transition to Medical School		
Practice of Clinical Medical Bootcamp		
Molecular Basis of Health and Disease		
Principles of Physiology		
Principles of Autonomics and Pharmacology		
Immunity and Infection		
Foundations of Disease		
Practice of Clinical Medicine		
Patient, Physician and Society		
Population Health and Evidence Based Medicine		
Ultrasound		
Diagnostic Reasoning		
Geriatrics		
Spring semester (MEDI 150)		
Marrow (Hematology / Oncology)		
Movement (Musculoskeletal)		
Gastrointestinal		
Endocrine		
Reproduction		
Practice of Clinical Medicine		
Patient, Physician and Society		
Population Health and Evidence Based Medicine		
Ultrasound		
Diagnostic Reasoning		
Geriatrics		
IPEC 502	Interprofessional Quality Improvement and Patient Safety	1
M2 year		
Fall semester (MEDI 200)		
Cardiovascular		
Pulmonary		
Renal		
Neuroscience		
Practice of Clinical Medicine		
Patient, Physician and Society		
Population Health and Evidence Based Medicine		
Ultrasound		
Diagnostic Reasoning		
Geriatrics		
Spring semester (MEDI 250)		
Behavioral Sciences		
Practice of Clinical Medicine		
Step 1 Study		
M3 year		
Fall and spring semesters (MEDI 300)		
M3 Transition to Clerkships		
Internal Medicine Clerkship		
Surgery Clerkship		
OB/GYN Clerkship		
Pediatrics Clerkship		
Family Medicine Clerkship		
Neurology Clerkship		
Psychiatry Clerkship		
Ambulatory Clerkship		
Foundational Career Exploratory electives		
Patient, Physician and Society		
Population Health		
Telehealth		
M4 year		
Fall and spring semesters (MEDI 400)		
Transition to M4 - Clinical Concentrations		
Two acting internships, one ward and one critical care (four weeks each)		

Step 2 Clinical Knowledge exam		
28 weeks of clinical electives		
Up to 20 weeks of non-clinical electives		
Patient, Physician and Society		
Interprofessional Critical Care Simulations		
IPEC 561	IPE Virtual Geriatric Case	2
Transition to Residency		

Curriculum requirements for the Ph.D.

Based on the equivalent knowledge acquired by successfully completing MEDI 100, MEDI 150, MEDI 200 and MEDI 250, IBMS 651 and 652 during the M1 and M2 years, and IBMS 653, 10 credits are satisfied (6 credits of electives, 4 credits of SBHD 690 department seminar). M.D.-Ph.D. students complete six credits of IBMS 697 (http://bulletin.vcu.edu/search/?P=IBMS%20697) in the summers after M1 and M2. Students are required to take additional credits of MD-PhD specific courses listed below. Courses taken to satisfy Ph.D. requirements do not satisfy M.D. requirements.

Course	Title	Hours
BIOS 601	Analysis of Biomedical Data I	3
BIOS 602	Analysis of Biomedical Data II	3
SBHD 609	Research Methods in Social and Behavioral Health I	3
SBHD 619	Research Methods in Social and Behavioral Health II	3
SBHD 630	Theoretical Foundations of Social and Behavioral Health	3
SBHD 632	Health Disparities and Social Justice	3
SBHD 634	Patient-Provider Interaction	3
SBHD 636	Community-based Participatory Research	3
SBHD 637	Program Evaluation	3
SBHD 638	Applications in Qualitative Research Methods	3
SBHD 639	Intervention Development and Implementation	3
SBHD 640	Seminar in Mixed Methods Research	1
SBHD 690	Departmental Seminar ((one credit course taken four times))	4
Required additional courses		
OVPR 601	Scientific Integrity	1
or		
OVPR 602	Responsible Scientific Conduct	
or		
OVPR 603	Responsible Conduct of Research	
Elective courses		
Any graduate-level courses approved by advisor (Satisfied by M1/M2 curriculum)		6
SBHD 697	Directed Research in Social and Behavioral Health	9
Total Hours		**54**

The minimum number of graduate credit hours required for this degree is 54.

Plan of study timeline

The dual-degree program blends medical and graduate training supplemented with M.D.-Ph.D.-specific course work and opportunities during the medical (M) and graduate (G) phases of the curriculum that culminates in the simultaneous awarding of the M.D. and Ph.D. degrees. The timeline of medical and graduate training is as follows:

Year 1 (M1): Mostly preclinical medical course work, some research

- Preclinical medical courses
- M.D.-Ph.D. Journal Club (two semesters)
- M.D.-Ph.D. Seminar (two semesters)
- Research rotations (and pre-matriculation research opportunity)

Year 2 (M2): Mostly preclinical medical course work, some research and clinical rotation

- Preclinical medical courses
- M.D.-Ph.D. Science and Disease (one semester)
- M.D.-Ph.D. Seminar (one semester)
- Research rotations
- Preparation for USMLE Step 1
- Required M3 clinical rotation(s) (one or two, lasting six to eight weeks total)

Year 3 (G1): Graduate course work and research, some clinical experiences

- Graduate program course work
- M.D.-Ph.D. Seminar (two semesters)
- Directed research (begin dissertation research)
- Opportunities for clinical experience

Years 4-5 (G2-G3) and additional year if needed: Primarily research, some clinical experiences

- Ph.D. Qualifying Examination, admission to candidacy
- Submit NIH F30 fellowship application
- Directed research (completion of dissertation research)
- Graduate program course work
- M.D.-Ph.D. Seminar
- Required M3 ambulatory care rotation
- Publication of peer-reviewed first-author paper
- Dissertation defense

Years 6-7: M3-M4: Completion of clinical training, clinical research experience

- Clinical rotations
- Clinical and non-clinical elective
- Preparation for USMLE Step 2
- M4 Clinical research capstone project

Contact

Dina Garcia, Ph.D., M.P.H., M.Ed.
Assistant professor and graduate program director
dgarcia4@vcu.edu

Additional contact

Nerice Lochansky Luu

4 Medicine, Doctor of (M.D.)/Social and Behavioral Sciences, Doctor of Philosophy (Ph.D.) [dual degree]

Education administrator
nlochansky@vcu.edu

Program website: sbs.vcu.edu