MEDICINE, DOCTOR OF (M.D.)/ CLINICAL AND TRANSLATIONAL SCIENCES, MASTER OF SCIENCE (M.S.) [DUAL DEGREE]

Medical students have the opportunity to pursue advanced training through a dual degree program that combines the M.D. with a Master of Science in Clinical and Translational Sciences. The M.D. and M.S. dual degree can be completed in five years and includes a six-credit reduction in the M.S. requirements due to applicable coursework completed in the M.D. curriculum.

The M.S. in Clinical and Translational Sciences program offers didactic training, hands-on research experiences and interdisciplinary mentorship. It is designed for students seeking to integrate research into their clinical careers.

Through the dual degree program, students will gain a deep understanding of disease mechanisms and actively engage in translating laboratory and clinical discoveries into real-world health improvements. The program prepares students to become investigators in the broad area of translational science, capable of collaborating across disciplines and engaging diverse stakeholders to design, disseminate, and implement impactful research.

Program Goals

The M.D. and M.S. dual degree program provides training and mentoring for a new generation of physician-scientists who, regardless of their primary research focus, will understand the methods and techniques used to translate research from laboratory discoveries to clinical applications.

Students in the program will become proficient in study design and implementation, data analysis and scientific publishing in accordance with best regulatory and ethical practices. The program emphasizes the value of interdisciplinary collaboration, preparing graduates to work effectively across diverse research teams. The knowledge and skills gained in the M.D. and M.S. program will enable our graduates to make meaningful contributions to the advancement of biomedical sciences as members of research teams.

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

Student learning outcomes

Student learning outcomes are described on the Master of (https://bulletin.vcu.edu/graduate/p-health/public-health-mph-conc-applied/) Science in Clinical and Translational Sciences (https://bulletin.vcu.edu/graduate/office-research/center-clinical-translational-research/clinical-translational-sciences-ms/) and Doctor of Medicine (https://bulletin.vcu.edu/professional-studies/medicine/medicine-md/#text) program pages.

Admission Requirements

Only students enrolled in the Doctor of Medicine program at VCU who are students in good standing in the M.D. program are eligible to apply for admission to the dual degree program combining the M.D. and Master of Science in Clinical and Translational Sciences degrees.

To apply for the M.S. in Clinical and Translational Sciences program, students must complete the Graduate School application (https://admissions.vcu.edu/apply-to-vcu/graduate-professional/). In addition, applicants will submit a 1-2 page Statement of Intent that clearly describes their background experience relevant to the program, their specific research interests and the way in which the master's degree will help them achieve their career goals.

Degree requirements

In addition to completing VCU School of Medicine requirements for the M.D. degree and the general VCU Graduate School graduation requirements (https://bulletin.vcu.edu/academic-regs/grad/graduation-info/), the M.S. degree can be earned upon completion of 24 credit hours that combine didactic course work (15 credits) and directed research (nine credits).

The program provides a sound foundation in clinical and translational research principles and thereby prepares the student to engage in many components of investigative processes. Students are expected to attend the research seminar course for two semesters during the program, in order to stay abreast of current health and human services research and to develop their communication skills. Additionally, students must complete a course on responsible conduct of research and scientific integrity, which will ensure that students understand the broad ethical implications of biobehavioral and biomedical research, understand what constitutes scientific fraud and misconduct, and are aware of their responsibilities as scientists.

To complete the master's program, students must register for CCTR 700, which may be completed in one of two forms: an NIH-style grant proposal or a peer-reviewed journal article ready for submission. The project will be overseen by the student's mentor and reviewed by the student's research advisory committee. Students are expected to present their final projects to their committees for acceptance.

Curriculum requirements for the M.D.

Courses taken to satisfy M.S. requirements do not satisfy M.D. requirements.

Course	Title	Hours
M1 year		
Fall semester		
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		

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
Interprofessional Education
Geriatrics
M2 year
Fall semester
Cardiovascular
Pulmonary
Renal
Neuroscience
Practice of Clinical Medicine
Patient, Physician and Society
Population Health and Evidence Based Medicine
Ultrasound
Diagnostic Reasoning
Geriatrics
Anatomy Rounds
Spring semester
Behavioral Science
Practice of Clinical Medicine
Patient, Physician and Society
Diagnostic Reasoning
Step 1 Study
M3 year
Fall and spring semesters
M3 Transitions to Clerkships
Internal Medicine Clerkship
Surgery Clerkship
OB/GYN Clerkship
Pediatrics Clerkship
Family Medicine Clerkship
Neurology Clerkship
Psychiatry Clerkship
Ambulatory Clerkship
Foundational Career Exploratory Elective (FE)
Patient, Physician and Society
Population Health
Telehealth
Geriatrics
M4 year
Fall and spring semesters
Transition to M4
Two acting internships, one ward and one critical care (four weeks each)
Step 2 Clinical Knowledge Exam
44 weeks of electives (24 weeks minimum of clinical elective time/20 weeks maximum of non-clinical elective time)
Patient, Physician and Society
Geriatrics
Interprofessional Critical Care Simulations
Transition to residency

Curriculum requirements for the M.S. in Clinical and Translational Sciences

Based on the equivalent knowledge acquired by successfully completing MEDI 100, MEDI 150, MEDI 200 and MEDI 250 during the M1 and M2 years, and interprofessional training during the M3 and M4 years, six credits of the M.S. program are satisfied (BIOS 544 and three credits of elective course work). Courses taken to satisfy M.S. requirements do not satisfy M.D. requirements.

Course	Title	Hours
BIOS 543	Graduate Research Methods I	3
CCTR 520	Fundamentals of Research Regulation	2
CCTR 630	Design Implications in Clinical Trials	3
CCTR 631	Adaptive Clinical Trials	1
CCTR 690	Research Seminar in Clinical and Translational Sciences (one credit, taken for two semesters)	2
CCTR 697	Directed Research in Clinical and Translational Sciences	9
CCTR 700	Master's Capstone Project	3
OVPR 601	Scientific Integrity	1
or OVPR 602	Responsible Scientific Conduct	
or OVPR 603	Responsible Conduct of Research	
Total Hours		**24**

The minimum number of graduate credit hours required for this degree is 24.

Recommended course sequence/plan of study for M.S. year

Year one

Summer semester		**Hours**
CCTR 697	Directed Research in Clinical and Translational Sciences	7
OVPR 601 or OVPR 602 or OVPR 603	Scientific Integrity or Responsible Scientific Conduct or Responsible Conduct of Research	1
	Term Hours:	**8**
Fall semester		
BIOS 543	Graduate Research Methods I	3
CCTR 520	Fundamentals of Research Regulation	2
CCTR 630	Design Implications in Clinical Trials	3
CCTR 690	Research Seminar in Clinical and Translational Sciences	1

CCTR 697	Directed Research in Clinical and Translational Sciences	1
	Term Hours:	**10**
Spring semester		
CCTR 631	Adaptive Clinical Trials	1
CCTR 700	Master's Capstone Project	3
CCTR 690	Research Seminar in Clinical and Translational Sciences	1
CCTR 697	Directed Research in Clinical and Translational Sciences	1
	Term Hours:	**6**
	Total Hours:	**24**

The minimum number of graduate credit hours required for this degree is 24.

Contact
Pamela Dillon, Pharm.D.
Associate professor and program director, Wright Center
pmdillon@vcu.edu

Additional contact
Jennifer C. Rew, M.Ed.
Education program manager, Wright Center
j (johnsontc3@vcu.edu)cheatham@vcu.edu (jcheatham@vcu.edu)

M.D. program
Lelia Brinegar, M.Ed., Ed.D.
Associate professor
lelia.brinegar@vcuhealth.org