



RUTGERS

Robert Wood Johnson
Medical School



**PRINCETON
UNIVERSITY**

RWJMS-PRINCETON MD/PHD STUDENT HANDBOOK



2023-2024

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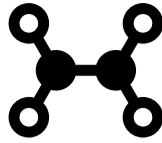
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This handbook should be considered an addendum to the handbooks provided by MD Phase and PhD phase programs. This handbook is informational only and does not constitute a contract between Robert Wood Johnson Medical School, Rutgers, The State University of New Jersey, or Princeton and any student. It may be changed by the MD/PhD Program without prior notice to students. Any rules, regulations, policies, procedures, or other representations made herein may be interpreted and applied by the MD/PhD Program to promote fairness and academic excellence, based on the circumstances of each individual situation.

This handbook represents a program of the current curricula, educational plans, offerings, and requirements of the MD/PhD Program. The schools reserve the right to change any provisions, offerings, financial benefits or requirements at any time within the student's period of study in the MD/PhD program.



PROGRAM DESCRIPTION

MISSION

The mission of the Rutgers Robert Wood Johnson Medical School (RWJMS) – Princeton University MD/PhD Program is:

- To train the next generation of physician scientists to advance biomedical research and medical practice, and to provide service to our communities
- To promote the interdisciplinary research training necessary to capitalize on growing scientific opportunities
- To support the unique career paths and address the challenges of the students in the MD/PhD program
- To foster a community of researchers, teachers, and clinical scientists conducive to the training of program students and all aspiring physician scientists.

POLICIES AND PROCEDURES

YEARS 1-2

ADMISSIONS

Switching to MD/PhD track - early phase

Most students enter the MD/PhD program through the AMCAS system during the standard MD admissions cycle. If slots are available in the MD/PhD at the end of the cycle, incoming M1 students with significant research experiences who have committed to matriculate at RWJMS can apply to the MD/PhD for the current cycle if applications are received by June 1 of the year of their matriculation to medical school. Students should inquire about availability before applying. Applications should include the following:

- An essay that describes motivation to enter the MD/PhD program (3,000 characters maximum).
- A essay that describes your significant research experiences. In this essay, please specify your research supervisor's name and affiliation, the duration of the experience, the nature of the problem you studied, and your contributions to the research effort (10,000 characters maximum).
- A letter of recommendation from the most recent research advisor. If this individual already submitted a letter for the AMCAS application, the applicant must solicit an addendum that addresses qualifications for pursuit of MD/PhD dual degree.

Students accepted by this mechanism will enter with the rest of the MD/PhD class and receive tuition remission and stipend support as described below.

Switching to MD/PhD track - late phase

Current M1 or M2 students with significant prior research experiences can apply at any time after receiving a passing grade in the Block 1 courses. Applicants should have explored research opportunities and contacted potential research mentors who will be accepting graduate students prior to applying. Applicants should submit the following to the MD/PhD program leadership:

- Copy of complete AMCAS application used for entry into RWJMS (sent by RWJMS admissions office)
- An essay that describes motivation to enter the MD/PhD program (3000 characters maximum).

- An essay that describes significant research experiences, focusing on current research activity if applicable. (10,000 characters maximum).
- A letter of recommendation from the current or most recent research advisor that specifically addresses qualifications and readiness for an MD/PhD program.

LAB ROTATIONS

Procedure:

Students who matriculate in the MD/PhD program as M1 students are required to perform 3 laboratory rotations. The number of rotations available for students matriculating after completing any portion of the pre-clinical curriculum will be determined on a case-by-case basis. Students must do at least one rotation at Rutgers. Rotations must be at least five weeks in length. The student should discuss the feasibility of joining the laboratory with each rotation mentor before beginning the rotation. It is not advisable to rotate in a lab that does not have current funding and a plan to provide funding when the PhD phase would begin.

- The first rotation is to occur in the summer before their M1 year, the 1st week of June through 2nd week of July. Exceptions are rare and require MD/PhD director approval.
- The second rotation will occur during the summer between M1 and M2 (2nd week of June to third week of July).
- The third rotation will occur after the USMLE step 1 exam has been passed, typically the first week of April. Note that Princeton has a May 15 application deadline for their PhD program, so all Princeton rotations must be completed and commitment from a PI is required by May 15 in order to be eligible for the Princeton PhD. Since Princeton has a limited number of slots for MD/PhD students, a secondary selection process may be required as described below.

Required forms:

- Students must complete a Rotation Approval Form, have it signed by the mentor and an MD/PhD program director, and the completed and signed form must then be submitted to the program administrator.
- A completed Rotation Final Report Form must be submitted within 3 weeks of the end of the rotation. The student should complete the top half of the form describing briefly the work in the rotation. The mentor should fill out and sign the bottom of the form and submit it directly to the program administrator.

MD/PHD CURRICULUM

The MD/PhD program consists of courses and program activities that supplement the MD and PhD curricula. It is designed to provide a foundation in the core areas of modern medicine, while allowing flexibility to meet the specialized research and training needs of the students, which range from basic science to applied clinical research. The core courses focus on fundamentals of research science, dissection of the scientific literature, and ethics. These requirements also provide students with opportunities to develop presentation skills.

Required courses:

- Topics in translation of research to medicine: Fall M1(1 credit). This is an integrated seminar and literature course in the application of research to biomedical problems.
- Ethical Conduct of Scientific Research: Spring M1(M2 or PhD years by permission; 1 credit). This course meets once per week covering a broad range of topics essential to the responsible conduct of research.

MD/PhD Program Symposium

All students are required to attend the Annual MD/PhD Program Symposium unless specifically excused by the program director. Students are invited to present their research in any year of the program, but are required to make presentations in all PhD years.

MD/PhD colloquia (aka “Monthly Meetings”)

This is a required series of monthly meetings covering a variety of essential topics including grantsmanship, research presentations, career development. It also includes an annual presentation by an alumnus speaker.

Student-Director Meetings

Students are required to meet periodically with a program director. M1 students meet as a group and individually upon request or at least once per semester, all other students have individual meetings on an annual basis at a minimum. The MD/PhD program coordinator will schedule meetings starting each Fall.

PRE-CLERKSHIP CURRICULUM

An 18-month pre-clerkship curriculum places foundational knowledge in the context of the practice of medicine and the Rutgers RWJMS 33 Core Clinical Conditions. Clinical cases will be thread throughout the 18 months. Clinical experiences, simulation, objective structured cases, and time for reflection and independent study will follow the foundational and integrated systems courses.

- Block 1: Physicianship (Physicianship Course; Physicianship Development and Practice Sessions)

- Block 2: Foundations in Medical Sciences (Cells to Structure; Principles of Pharmacology and Disease and Defense)
- Block 3: Integrated Systems 1 (Nutrition and Metabolism; Cardiovascular System; Pulmonary & Renal Systems)
- Block 4: Integrated Systems 2 (Endocrine and Reproductive Systems; Gastrointestinal System)
- Block 5: Brain and Behavior (Nervous Systems, Nervous System and Behavior)
- Block 6: Physicianship 2 (Physicianship Development and Practice Sessions)

USMLE STEP 1

Students will typically take their Step 1 exam in March at the end of a 7-week period of dedicated study. After taking the exam, students can begin their third rotation.

Policy Alert

Students cannot begin their PhD phase research until they have passed Step 1. If students need to delay taking Step 1 or do not pass on the first attempt, the PhD phase must be delayed until after the second attempt. Students who do not pass Step 1 after the second attempt will not be allowed to continue in the MD/PhD program and will be subject to RWJMS academic rules regarding Step 1 failures.

PHD LABORATORY SELECTION

A major advantage of a joint Rutgers-Princeton program is the variety of laboratory research topics and apprenticeship/mentorship styles available at the two sites. For example, opportunities for translational research (e.g., studying human tissue from clinical trials, surgeries, or autopsies) are more readily available at Rutgers, and some of these studies take place exclusively at Rutgers. In order to balance student preferences and institutional limits, a match process is used to pair students with PhD mentors. After completing their final rotation, students will submit a rank-ordered list of the labs in which they wish to do their PhD work. Students should only include labs that have provisionally agreed to take and provide funding for them. During the second week of May, the program directors will meet to review lab preferences. Typically, first choices will be granted. However, Princeton can only guarantee three slots per year for MD/PhD students (more slots may be available depending on Princeton PhD class size and other factors). If there are more requests for Princeton laboratories than positions available (this is determined by the Princeton Graduate Committee), then the student may be assigned to the next most-preferred laboratory.

Policy Alert - Students who are unable to secure a position in a lab by September of the third year will be referred to the MD/PhD academic standing committee, which may recommend a dismissal hearing. If the committee votes to dismiss, then the student will no longer be enrolled in the MD/PhD program but can continue as an M3 medical student.

PRE-PHD CLERKSHIP

Students are have the option of scheduling a clinical experience prior to beginning their PhD. There are two options for this experience: 1) student-crafted personalized elective based on their interests and contacts they have made during M1/M2; 2) enter clerkships with the rising M3 students, but only participate in 1 block. In both cases, students should plan on attending the Simulated Patient Introduction to Clinical Experiences (SPICE) course held during the last week of March.

POLICIES AND PROCEDURES YEARS 3-6

PHD PHASE REQUIREMENTS

Candidacy Proposal and Submitting Grant Applications

During the PhD phase, students are to adhere to the policies and procedures for their graduate program. In general, students should plan on submitting their proposal for candidacy by Spring of their first year. Students should also plan on submitting their proposal as a grant application to the NIH or other funding agency. Students are required to submit at least one grant application during their PhD training, and we strongly encourage submission of an NIH F30 grant if applicable. The program keeps an F30 guide up to date to assist students with the process.

Individual Development Plans

Every Spring, students are required to complete and submit an individual development plan (IDP). At both Rutgers and Princeton, this is integrated into the annual committee meeting requirement. It is an opportunity for students to reflect on their progress and goals and generates dialogue with the thesis advisor and program directors. This also provides an opportunity to discuss PhD timeline and trajectory toward publication.

Staying Connected

Throughout the PhD phase, connection with the MD/PhD program is maintained by attendance at the required monthly meetings, service on PSSA committees (see below) and other events. Attendance at MD/PhD program events is required, and excused absence requests must be submitted prior to the event.

Clinical Engagement during the PhD phase

A central mission of the MD/PhD program is the training of physician-scientists. This means that, in addition to their regular PhD work, all students should approach their research through a clinically-relevant lens. This comes in different forms for each student, research topic, and career goal. Students can accomplish this through directly working with their PhD advisor if the laboratory already engages in clinically-relevant research; clinical/translational journal clubs; shadowing physician-scientists; or volunteering as a medical student.

It is not the expectation of the MD/PhD program that students conduct regular clinical shadowing or clinical work (e.g., volunteering at a free clinic) during their PhD training, as students are expected to be fully committed to graduate coursework and research. Most MD-PhD graduates surveyed have found longitudinal clinical exposure to be unnecessary for a successful transition back to M3 if there is a formal PhD-to-M3 transition program. If students are interested in recurrent clinical shadowing or clinical work which amounts to four hours per month or more, approval must be obtained from the PhD advisor and the MD/PhD program.

Clinical shadowing should only occur when it does not interfere with patient care, formal training of other trainees (RWJMS medical students, residents, and fellows), and other clinically necessary activities. Students are highly encouraged to shadow physician-scientists or clinician-investigators. It is critical that students who shadow faculty or volunteer at free clinics identify themselves as medical students.

Practice rotations – 4-6 weeks of ungraded clerkship – are not permitted until there is a planned re-entry into M3 based on approval from the Dissertation Committee, MD/PhD program, and RWJMS Student Affairs.

RETURNING TO RWJMS FOR M3 TRAINING

Completing the PhD and returning to clinical training is perhaps the most logistically challenging aspect of the MD/PhD program, and it requires significant planning. The following process is required for successful transition:

1. In the Fall of a student's final year of PhD work, students should schedule their penultimate committee meeting in order to gain approval of a completion timeline. If approval is obtained, the tentative defense date should be forwarded to the MD/PhD program and RWJMS student affairs.
2. In December of the final PhD year students must attend a transition meeting led by RWJMS student affairs. At this meeting, the process will be reviewed and students can declare their anticipated timeline. There are two scenarios based on time of PhD defense:
 - I. Students defending early (February) can schedule a 4-week practice rotation during the month of March, enroll in the Simulated Patient Introduction to Clinical Experience (SPICE) course and then begin clerkships with the other rising M3 students on May 8. Note that SPICE is only offered once per year and must be taken immediately prior to starting the M3 clerkships.
 - II. Students defending after the end of February need to enroll and participate in SPICE prior to defending. A practice rotation can occur either before or after the PhD defense, but the defense date must be approved by the dissertation committee and scheduled before a practice rotation can be assigned. Students will then join the next available rotation block, typically mid June.

a. **Policy Alert** - Students who have not completed their PhD defense and practice rotations by September 30 will need to postpone the transition to M3 to the following Spring.

b. Note, students unable to complete all of the core clerkships during their M3 year because of a delayed start will have ample time to finish them during the M4 year.

Policy Alert - Students must formally schedule their PhD defense prior to scheduling a practice rotation or clerkship. As soon as the final defense date is set, notice must be sent to the MD/PhD program and RWJMS student affairs.

F30 GRANT ADMINISTRATION DURING M3 TRANSITION

Students doing their PhD work at Princeton will need to undertake a process to transfer their F30 award to Rutgers - RWJMS. Students at Rutgers do not need to complete this process. The following steps and timeline should be used as a guide:

1. In January prior to transition, check with the Princeton grants office to find out how much of the institutional allowance still needs to be spent and make sure all funds are appropriately used as soon as possible.
2. Plan to start working on your F30 transfer application, which will need to be submitted immediately after the PhD defense (FPO) date has been set. Guidance and samples for the transfer application can also be found in the F30 guide

POLICIES AND PROCEDURES YEARS 6-8

M3 CURRICULUM

Simulated Patient and Introduction to Clerkship Experience

The Simulated Patient and Introduction to Clerkship Experience (SPICE) is a one-week course designed to introduce students to the third year clinical clerkships. Faculty are involved in teaching a variety of topics including acclimation to the clerkship experience, computer resources, hospital orientation, diagnostic radiology, a clinical procedure workshop, universal precautions, venipuncture training, patient and personal safety in the health care setting, case-based learning, and death and dying.

Physicianship III

The overall goal of the course is to increase understanding of key areas in Health Systems Science and increase ability to meet the quintuple aim - enhance the patient experience, improve population health, reduce costs, improve the work-life balance of health care providers and advance health equity.

Students will explore a variety of topics that bridge the various clinical disciplines, with a focus primarily on health systems: how we deliver health care within the larger system. The course will build on several of the content areas introduced in Physicianship I and II such as communications, ethics, diversity, equity, safety, quality, cost, and teamwork. Students will continue to meet in their Physicianship small groups and will have the opportunity to reflect on clerkship experiences as they relate to these important topics.

Core Clerkships

The third-year clerkships are presented in four twelve-week blocks. The blocks provide an opportunity to both focus on the clerkship and learn the connections across specialties. Our blocks are:

- Family and Behavioral Health: Family Medicine and Psychiatry
- Hospital Medicine: Medicine and Surgery
- Rapid Diagnosis, Challenging Differentials and Critical Learning: Emergency Medicine and Neurology
- Women and Children: Obstetrics and Gynecology and Pediatrics

The Family and Behavioral Health as well as the Women and Children blocks include two week sessions composed of integrated learning opportunities that focus on the clinical integrations and patient care across the two clerkships. This results in the twelve-week block being composed of two five-week core clinical experiences and one two-week integrated learning and assessment experience.

M4 CURRICULUM

The fourth year typically begins with dedicated time to prepare for and take the USMLE Step 2 licensure exam. In the clinic, the 4th year consists of opportunities to advance professional development and gain more experience in specialties of interest including experiences in critical care, sub-internships, electives and a transition to residency bootcamp. Note that the earning of a PhD counts towards 16 elective credits at RWJMS, so MD/PhD students have more time to complete third-year clerkships that may have been delayed due to research activity.

ACADEMIC RULES AND REGULATIONS

STUDENT PERFORMANCE

MD/PhD students are subject to all of the academic rules and regulations set forth by the MD program at RWJMS and the PhD programs at Rutgers or Princeton. Continued participation in the MD/PhD program requires students to maintain good academic standing. A review of student performance will be initiated when persistent academic difficulty is encountered during any phase of study. During the MD phase, this corresponds to a failure of 2 courses/clerkships or any other circumstances that result in an RWJMS dismissal hearing according to the RWJMS academic rules. During the PhD phase, a student's performance will be evaluated for failure to pass the oral qualifying exam or an unsatisfactory progress report following the annual committee meeting or any other circumstances that result in potential dismissal from the School of Graduate Studies. The MD/PhD executive committee is the body that reviews student performance, and they may recommend remediation or that a student be not allowed to continue in the MD/PhD program. This action can occur independently of any action taken by the MD or PhD programs, and will have no bearing on a student's eligibility to remain in the MD and/or PhD program without the financial benefits afforded to MD/PhD students.

PROFESSIONALISM

MD/PhD students are expected to act with the highest regard for professionalism and will be held to the standards set forth in the Rutgers University Code of Student Conduct.

PROGRAM FINANCES

SUMMARY OF PROGRAM FINANCIAL BENEFITS

MD Phase

The program provides the following financial benefits for the 2023/2024 academic year

- Tuition: \$68,564/\$44,435 Out/In State - full remission
- Fees: \$2,202 - full remission
- Health Insurance: \$2,565 - full remission if coverage is needed
- MD-Phase Stipend: \$35,000 per year for a maximum of 48 months (effective July 1, 2023). Longer MD-Phase study can be supported by grants or loans.

PhD Phase

- PhD phase stipends vary depending on institution and graduate program. The minimum stipend in RBHS labs in the Molecular Biosciences Graduate Program is \$40,365. The stipend for MD/PhD students at Princeton is \$50,400. The duration of PhD phase support is variable but typically does not extend past 5 years.

Note that the program does not cover any other costs including the following:

- Moving expenses
- Transportation expenses
- Housing
- Health Insurance for spouse/dependents
- Dental Insurance
- Vision Insurance

Policy Alert - This financial arrangement does not include a payback agreement. Students who do not complete the program are not required to return any previously received compensation.

PHYSICIAN SCIENTIST STUDENT ASSOCIATION (PSSA)

STRUCTURE

Overview

The Rutgers-Princeton MD/PhD program PSSA is a student organization charged with supporting the unique needs of MD/PhD dual degree students. PSSA representatives participate in most aspects of the program including admissions, recruitment, events, alumni relations, and social media. Elections are held annually in the Spring with terms running in accordance with the RWJMS fiscal year (July to June). Committee membership is open to all and chairs are elected at the first committee meeting.

Offices (recommended status at the time of candidacy):

- President (G1 - M3) - Convenes and leads monthly cabinet meetings as well as annual program-wide meeting. The president is responsible for submitting an annual report and recommendations to the program leadership.
- Vice President (M2 - G4) - Works with the president to organize meetings and leads projects as designated.
- Secretary (M1 - M3) - Provides all communications about meetings and records all meeting proceedings as minutes and keeps records of meeting materials.
- Treasurer (M1 - M3) - Manages the PSSA events budget, keeping records and liaising with program staff regarding all PSSA-related financial matters.
- Historian (M1 - M3) - Records program events through photography and written synopses, which are included in the newsletter.
- APSA Institutional Representative (M1-M2) - The president of the American Physician Scientist Association (APSA) executive board will serve in the cabinet as a liaison between the local PSSA and the national organization.

Committees:

- Events - Plan program events including monthly meetings, social events and annual symposium
- Recruitment - assist program staff in organizing and executing recruitment events, particularly the “Second Look” accepted student event.

- Communications - Publish the newsletter, maintain social media accounts and assist with maintaining the program website.

PROGRAM COMMITTEES

EXECUTIVE COMMITTEE

The role of the MD/PhD Program Executive Committee is to oversee and provide guidance for all aspects of the program. The committee will meet annually and review recruitment activities, admissions, curriculum changes, and inter-university issues. The committee members will be called upon by the program directors to recommend faculty for membership to committees and to participate in courses or the colloquia. The executive committee will review and must approve all faculty that apply for membership in the program. The executive committee also serves as the MD/PhD program academic standing committee, which will be convened when a student encounters persistent academic difficulty during any phase of study. During the MD phase, this corresponds to an initial failure of 2 courses or any other circumstances that result in an RWJMS dismissal hearing according to the RWJMS academic rules. During the PhD phase, a student will be referred to the academic standing committee for failure to pass the oral qualifying exam or an unsatisfactory progress report following the annual committee meeting or any other circumstances that result in potential dismissal from the School of Graduate Studies. It has the following composition:

- Program Co-directors (3)
- Director for Clinical & Translational Research (1)
- Clinical faculty (1)
- Basic Science Faculty at RWJMS (1)
- Basic Science Faculty at Princeton (1)
- RWJMS Student Affairs (1)
- Sr. Assoc Dean for Research RWJMS (ex officio)
- Sr. Assoc Dean for Graduate Studies (ex officio)

ADMISSIONS COMMITTEE

Applicants are screened by the basic science co-director and the Assistant Dean for Admissions at RWJMS. The admissions committee conducts 30 minute interviews with applicants that have been selected and after meeting to discuss the interviewed applicants, the committee votes on whether to accept, competitively hold or reject applicants. The committee is comprised of the executive committee plus subject matter experts and will be chaired by the basic science co-director. The admissions committee consists of the executive committee plus the following:

- RWJMS faculty (4)
- Rutgers School of Arts and Sciences faculty (1)
- Rutgers School of Engineering faculty (1)
- Princeton faculty (6)
- Alumni members (1)
- MD/PhD Student members (2)

EXTERNAL ADVISORY BOARD (EAB)

The EAB will meet annually to assess effectiveness of the program and provide guidance with respect to competitiveness and meeting benchmarks required for the NIH MSTP program.

- Chris Williams (Vanderbilt)
- Leslie Parent (Penn State)
- Olu Ajijola (UCLA)
- Rick McGee (Northwestern)
- Lawrence (Skip) Brass (U Penn)