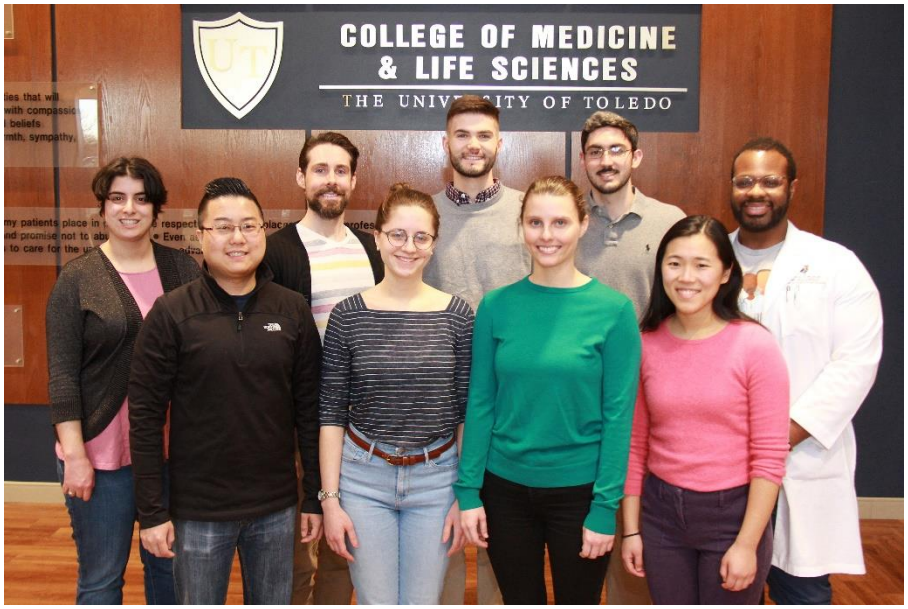
THE UNIVERSITY OF TOLEDO

MD/PhD DUAL DEGREE PROGRAM

Student Handbook



University of Toledo

College of Medicine & Life Sciences

2020-2021

FUELING TOMORROWS

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Introduction

This MD/PhD hand book is meant to provide information, and links to further information, as you go through your career as an MD/PhD student at the University of Toledo College of Medicine and Life Sciences. It does not need to be read all in one sitting. The sections have been arranged so that information is available to you during your application process and for each stage of your student career. This is an ongoing project and we will do our utmost to keep it updated. In fact, while we are finishing the final proofs to this current handbook (April, 2020), we are in a mandatory "stay-at-home" edict by the Governor of Ohio due to the COVID 19 pandemic. A vast amount of emergency plans are in the midst of being developed for all of our MD and PhD students. Many things will likely change over the next few months and years. Please do not hesitate to contact us if you find errors, omissions, or permanent changes from what is described in this handbook. We deeply appreciate your patience and your input. Sincerely,

Kandace Williams. PhD
Associate Dean of College of Medicine and Life Sciences Graduate Programs
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Mission Statement & History

The mission of the MD/PhD Program at the University of Toledo College of Medicine and Life Sciences (UTCOMLS) is to provide outstanding training that integrates clinical medicine, biomedical science, compassionate care and professionalism to enable students to succeed as independent physician-scientists with the skills, creativity and vision to shape the future of health care. Our goal is to provide rigorous training in a supportive environment for students who will become the next generation of leaders in academic medicine or a variety of alternative career paths.

The combined MD/PhD degree program at UTCOMLS began in the mid-1980s as a mechanism to allow simultaneous pursuit of both the MD and PhD degrees. The first student with a dual degree graduated in 1992. The program offers students outstanding integrated training as both physicians and laboratory scientists and provides a supportive atmosphere for students to pursue both medical and research training for careers as academic physician-scientists. Graduates from our MD/PhD program have progressed to highly competitive residencies and served as faculty at prestigious research institutions.

Our goal is to provide students with the skills needed to conduct independent biomedical research and a firm clinical foundation for subsequent residency, fellowship and/or post-doctoral training. It usually takes seven to eight years to complete all requirements for both degrees - the national average is currently 8 years.

Typically, two to three students per year matriculate into the MD/PhD track. Thus, there are generally a total of 14 to 18 students in the program at any given time.

Admissions

Application to the MD/PhD program is a three-step process. The first step is to apply for admission to the UTCOMLS using the American Medical College Applications Services (AMCAS) web application. When completing the application, the applicant selects MD/PhD Program. Applicants will participate in the same MD interview process and will also be interviewed by MD/PhD Program Director and the basic science admissions committee in the applicants track of research interest. Applicants that have been accepted into both MD and PhD track of interest will then have their applications sent to the MD/PhD steering committee to determine if these candidates are acceptable for the MD/PhD program and to also determine if they meet the qualifications for MD Dean's scholarship which pays for medical school tuition. All accepted MD/PhD students will have both stipend and full tuition waiver for the PhD portion of their studies.

Once a student is admitted they will be given directions to complete the College of Graduate Studies application to be formally accepted into the College of Graduate Studies for the PhD portion of their studies. Complete information regarding the admission process can be found here.

Financial Aid and Scholarships

Two MD/PhD students per year are eligible to receive medical school tuition scholarships to cover the full cost of medical school tuition during the time these students are registered as medical students. Students who receive medical school tuition scholarships must sign a promissory note upon acceptance of the scholarship, agreeing to pay back the amount of tuition awarded in the event that the student drops out of the program or does not make adequate progress toward completion of both degrees.

For students who are accepted into the MD/PhD program, but not awarded tuition scholarships, the tuition cost of the 3rd and 4th years of medical school is frozen at the level it would have been had the student gone directly through four years of medical school. This ensures that students in the program are not subject to tuition increases that may occur during their graduate school years.

If a student is accepted into the MD/PhD program after completing one or two years of medical school or if the scholarship is awarded after matriculation, the tuition scholarship is not retroactive to the time prior to acceptance into the combined degree program or award of the scholarship. The tuition scholarship will be applied towards future years of medical school.

Students must maintain grade performance requirements for yearly renewal of the tuition scholarship. These expectations are performance in the upper 50% of the class in all medical

school courses and maintenance of a 3.0 or higher GPA in graduate coursework. Grades less than these are considered on a case-by-case basis.

All MD/PhD students receive a graduate school tuition waiver and living stipend while enrolled as full-time graduate students during the PhD training phases of the program. Students must maintain a cumulative 3.0 or higher GPA for all graduate courses.

Students who are out-of-state residents should apply for in-state residency immediately upon becoming eligible (after one year in the program) whether or not they have been awarded a medical school tuition scholarship. This will greatly reduce medical school tuition expenses whether the student is paying on his/her own or is receiving a scholarship.

Most students, even those with medical school tuition scholarships, apply for and receive financial aid in the form of loans and grants. Information about financial aid is available through the UT Office of Student Financial Aid website and COMLS MD student financial aid.

Additional Scholarships & Grants

Whether receiving a medical school tuition scholarship or not, students should strongly consider working with their PhD advisor to apply for a Ruth L. Kirschstein National Research Service Award (NRSA) (F30 or F31 award) from the National Institutes of Health. These prestigious awards for MD/PhD, PhD, and underrepresented minority students in training for research careers include a stipend, tuition, funds to conduct dissertation research, and funds for travel to scientific meetings. For more information: F30 and F31 training grants

Additionally, grants to support MD/PhD or PhD training are available from several disease-related or specialty-related agencies. In recent years, UTCOMLS MD/PhD students have been awarded grants from the American College of Sports Medicine, American Diabetes Association, American Heart Association and the Epilepsy Foundation of America among others. Assistance to identify funding opportunities from such organizations can be obtained from the.

MD/PhD students are also urged to apply for the College of Graduate Studies University Fellowship. This fellowship is offered to incoming graduate students and includes covered cost of tuition and student fees as well as stipend.

For those students not receiving the Medical School scholarship, many other scholarships are available to help cover the cost of medical school. More information regarding MD scholarships can be found here.

Program Structure & Overview

The standard structure of the MD/PhD program begins with approximately 18 months devoted to medical school and completion of the United States Medical Licensing Examination (USMLE)

Step 1 exam. During the summer break between year 1 and year 2 students will participate in research rotations in 2 research labs to help determine their PhD mentor. More information about this can be found in the *Laboratory Rotations and Identifying a PhD Mentor* section of this handbook.

Upon completion of USMLE Step 1 exam at the end of year 2, students officially begin graduate school. Students will complete required coursework for the PhD in their track of interest, pass the Qualifying Exam, conduct research in their major advisors' research lab for the PhD dissertation, and write and defend the dissertation. Upon completion of the written dissertation, its oral defense, and all required coursework, the student will be awarded the Ph.D. degree.

Thread 1 medical school coursework credits are applied towards the requirements for the PhD. This minimizes the number of graduate courses MD/PhD students must take and frees up time for dissertation research. Typically, MD/PhD students take 3-4 years to complete the PhD.

Students will take the MD/PhD Clinical Elective course (INDI 745) each semester while in graduate school to ensure continuity with their preclinical training and to help smooth the transition back to medical school for the clinical clerkships. More information about this course can be found below in the *Clinical Training during Graduate School section*.

After completing the PhD, dual degree students return to medical school as year 3 students. They begin clinical rotations and completion of medical school.

Preclinical Medical School Coursework

MD/PhD students take all of the same preclinical medical school courses and electives during medical school years M1 and M2 as other MD students.

The medical school curriculum and course structure is a systems-based approach to learning medicine. UTCOMLS is committed to developing physicians with a broad range of knowledge, skills, attitudes and understanding, allowing them to pursue careers in primary care or any medical or surgical specialty.

The first year of medical school includes the following:

Thread 1: Cellular Disease

- Human Blueprint
- Hematology & Oncology
- Immunity
- Infectious Disease

Thread 2: Bones- Neuro- Behavior (BNB)

- Musculoskeletal
- Neuroscience in Health and Disease

- Behavioral Science and Psychiatric Medicine

The second year of medical school includes the following:

Thread 3: ECOsystems
- Cardiovascular
- Pulmonary
- Endocrine

Thread 4: Cycles and Vices
- Gastrointestinal
- Reproductive
- Endocrine

Longitudinal Threads:
- Foundational Sciences: Physiology, Anatomy, Histology, Pathology, Radiology, Pharmacology, Biochemistry, Embryology
- Principles of Clinical Medicine (PCM), Clinical Skills & Reasoning, Patient Safety, Interprofessional Education (IPE), Population Health, Business in Medicine, Biostatistics, Ethics, Professionalism
- Leadership
- Career Exploration & Development

Preparation for PhD Training: Choosing a PhD Advisor

The graduate program in Biomedical Sciences is organized into interdisciplinary programs based on the disease processes with which they are most closely aligned. These programs are termed 'tracks' and the basic science COMLS 'home' department of each track is in parentheses below:

Cancer Biology (Department of Cancer Biology)

Molecular Medicine (Department of Physiology & Pharmacology)

Medical Microbiology & Immunology (Department of Medical Microbiology & Immunology)

Neurosciences and Neurological Disorders (Department of Neurosciences)

MD/PhD students will conduct their dissertation research under the guidance of faculty who are closely affiliated with one of these four tracks, however the primary research advisor may be faculty in one of COMLS clinical departments.

Choosing a laboratory for rotation is one of the most important and challenging steps of one's PhD education and the student should put substantial effort into making the best choice. To help students identify potential labs for rotations, a series of seminars by faculty who have

positions in their labs for PhD students are held over the first few weeks of fall semester every year; “the PI Parade”. Each session typically includes 2-3 faculty presentations (20 minutes with 10 minutes for questions). The schedule of presenting faculty is developed by the lab rotation course director and made available to the MD/PhD students. Attendance by MD/PhD students is not mandatory, but strongly encouraged (the fall medical school curriculum may conflict with the seminars.)

Additional information about available openings in faculty labs can be obtained from the of each research track director.

MD/PhD students are also encouraged to attend research seminars offered throughout the year by various departments, especially the home department of their track of interest.

MD/PhD students will complete their two 4.5 week lab rotations during the summer break between year 1 and year 2 of Medical School through the MD/PhD Medical Student Research Program (MSRP).

Students will be compensated for these two research rotations through a Federal Work Study Program (if eligible) and be paid $10 per hour up to 40 hours per week. The maximum stipend any one student can receive is $3600.

Process for enrolling in MSRP:

- Complete the MSRP application & admission process (application typically opens in December and has a deadline of January). Students should identify themselves as an MD/PhD student.
- Register for SOMN 745 for summer semester
- Determine lab placement:
    - The process for lab placement for MD/PhD students is somewhat different from other MD students participating in the MSRP program.
    - Meet with the Track Director of your research track and with the recommended faculty whose research you are interested. Be sure to ask if the faculty is willing to take on a MD/PhD student starting the following summer.
    - Work with each faculty to determine your rotation schedule. Each rotation should be 4.5 weeks with a mandatory 2 week vacation during this 11 week break between year 1 and year 2.

Upon completion of the two rotations, the student will choose which lab s/he would prefer to join. Then the course director will query the faculty member of that lab if s/he will accept the student for PhD training. If the chosen advisor decides not to accept the student, the student may request to join the other rotation lab or may elect to complete additional rotation(s) in the subsequent summer to identify another lab of interest.

The student and mentor typically develop a working relationship and friendship that can last through one's career. However, on rare occasions, the relationship is not successful and the student may need to identify a new mentor. There are several reasons this could happen. Should such a situation arise, it is the responsibility of the mentor, Track Director, Chairman, and Associate Dean of COMLS Graduate Programs to help the student identify a suitable new mentor in a timely manner.

MD/PhD Student Meetings & Progress Reports

Individual meetings between current MD/PhD students and the program Director are typically scheduled in January-February and August-September. At these meetings, discussion focuses on student progress, any upcoming transition between medical school to graduate school and vice versa or plans to graduate, and the steps and entities that need to be notified of a transition or graduation. These meetings are meant to support students as they move through the program.

Student-run MD/PhD meetings are held monthly. Students usually elect a Chair each year (who is in the PhD portion of their studies) to provide an agenda and help organize these meetings. The MD/PhD Program Director & Administrator of Graduate Studies also attend these meetings to hear and address student concerns and assist with student planning of events such as an annual MD/PhD retreat or other events. The MD/PhD Program Director also attends the MD/PhD Steering Committee where s/he provides and receives input about the program.

MD/PhD students should also participate in various other research or departmental track events such as retreats and holiday parties.

Transitioning to Dissertation Research in Graduate School

After completion of the first 18 months of medical school, students generally take several weeks to prepare for the USMLS Step 1 exam. This is a comprehensive examination covering all of the material presented in the first two years of medical school. Students must achieve a Pass score on Step 1 in order to transition into Graduate School. The Pass score is defined by the USMLE each year. If a failure is achieved, the student must plan to re-take the exam. Information regarding the examination and scheduling can be found at http://www.usmle.org/apply/.

After taking Step 1, students will enter graduate school to take graduate school courses, additional laboratory rotations, if needed, and move on to undertake their dissertation research.

Graduate School Registration & Stipend

Prior to entering the graduate school for the first time the student should meet with the MD/PhD Program Director in a semi-annual meeting and begun the necessary paperwork and

notifications for the transition (discussed above). The COMLS Graduate Coordinator will work with each student to complete the graduate school Research Assistant offer letter and to complete Human Resources New Hire Paperwork in the spring of their M2 year.

Students should register 'full time' for fall, spring, and summer terms while in graduate school. This translates to 9 credits in fall and spring and 6 credits for the summer. Registering for the full number of credits is required for the graduate stipend.

Graduate School Curriculum Requirements

Students must meet all of the requirements for both the MD and PhD degrees, i.e., ten semesters/terms of medical education and a minimum of 90 graduate semester credits. The time limitation for completion of both MD and PhD degrees is 10 years. The additional specific requirements for the PhD degree can be found in the Graduate Student Handbook for the year in which the student entered the MD/PhD program via this link for College of Graduate Studies UT requirements and via this [link] for Biomedical Science Program track specific requirements Information on the specific medical school requirements for graduation can be found here.

The Biomedical Sciences PhD program has a common first-year core curriculum for PhD students however much of this curriculum is covered in medical school. Therefore, MD/PhD students are allowed to apply the 20 credits from Thread 1 towards their PhD. This decreases the number of core courses required in graduate school and accelerates the entry of the students into the lab and the completion of their dissertation research. The PhD requirement is a minimum of 25 didactic (carrying a letter grade) graduate course credits, however each track also has required advanced courses that all PhD students must take. There are 30 credits of required dissertation research and 90 credits total minimum required for the PhD.

Of the PhD BMSP core curriculum, MD/PhD students are required to take the following:

- INDI 6020 On Being a Scientist
- BMSP 6380 Methods in Biomedical Science (BMSP 6380/8380)
- BMSP 7320 Statistical Methods
- INDI 745 MD/PhD Clinical Elective (See Clinical Training during Graduate School)
- Required track-specific courses and journal clubs – students should consult with their Major Advisor, Track Director, and track websites:
    - Cancer Biology
    - Molecular Medicine
    - Medical Microbiology and Immunology
    - Neurosciences and Neurological Disorders

MD/PhD students are strongly recommended to also take the following courses since the courses will help them in their research endeavors:

- PUBH 6010 Public Health Epidemiology
- BMSP 6250 Grant Writing Workshop**

** Must pass Qualifying Exam before taking this course.

Clinical Training during Graduate School (INDI 745)

During graduate school, MD/PhD students are required to take INDI 745; MD/PhD Clinical Elective. This course reinforces preclinical education in pathophysiology, pharmacology, and other areas while beginning to develop the clinical skills you will need as third year clinical clerks. The course consists of 8 hours per month of clinical activity, this equites to 36 hours of contact time in the fall and spring semesters, which is equivalent to about 1.5-2 credits per semester; hence, students should register for 2 credits in the fall or spring semester. Students will complete about 24 hours of contact time in the summer semester, so students continuing their clinical experience in the summer should register for 1 credit. *Credits for this course do not count towards the 90 credit hours needed for PhD, but must be within the 9 credits total for Fall and Spring semester and 6 credits total for summer.* A Clinical Mentor/Mentee Contract should be completed by the student and Clinical Mentor indicating their willingness to work together. This only needs to be completed once unless a new clinical mentor is selected. Though the mentor does not need to commit to being present at every clinical session, this individual must ensure that the student receives a meaningful clinical experience. The Clinical Mentor/Mentee Contract can be found in the appendix of this handbook.

Two weeks of 4th year clinical elective is equal to 3 credits; hence, students should be able to earn at least 12 credits over 3 years of graduate school to qualify for 8 weeks of clinical elective credit.

Prior to taking these electives, students are required to attend the one-week Bridge to Clerkship Course during the last week of April. The Bridge Course introduces pre-clinical students to life in the hospital and clinics and expectations for students participating in clinical rotations. It should be noted that the student will participate in the Bridge Course two times; first at the end of their second year of medical school and again before year 3 of medical school. The student should register for this course during the spring semester in which they will be defending their dissertation.

Dissertation Committee

A student should assemble a Dissertation Committee within the first month after joining a faculty mentor's lab. The Committee is responsible for advising the student with their research project and progress through the PhD side of the program. The Committee also administers the Qualifying Exam (see below) and serves as the decision-making body during the Dissertation Defense when the student presents and defends her/his research as a final requirement for the

PhD. Hence it is important the committee contains individuals knowledgeable in the student's research area.

Membership of the Dissertation Committee should be determined in consultation with the student's faculty mentor. A minimum of five faculty members is required and inclusion of an extramural member(s) is possible if appropriate but is not a requirement. Not all committee members need to be members of the Track in which the student has chosen to concentrate, but typically, most will be. All members must be Graduate Faculty approved by COMLS Dean and the UT Graduate Council. When committee members are identified, they should agree to serve by their signature on the student's GRAD form, which will be placed in the student's file. Occasionally members of the Dissertation Committee must be replaced, usually because of a move to another institution. In those cases, the minimal number of five members must be maintained by the addition of another member.

The student should meet with the Committee at least once per year to provide a progress report on the research project. The Committee also will determine when the student has generated sufficient data to begin writing the dissertation and scheduling its defense.

Qualifying Examination

MD/PhD students are required to pass the PhD Qualifying Examination before the end of their first full year in graduate school. The purpose of the Qualifying Examination is to evaluate the student's knowledge and ability to analyze information in his/her area of concentration and to apply this to the solution of problems that a student would be expected to meet in her/his professional career. The examination provides the student with the opportunity to demonstrate that s/he is adequately knowledgeable in a chosen area of concentration.

Prior to the scheduling of the examination, the GRAD and Plan of Study forms and establishment of the Dissertation Committee must be completed.

The Qualifying Examination is administered by the Dissertation Committee and consists of a written portion in the form of an NIH R21 style grant and an oral exam. The written portion must be written solely by the student. The oral exam includes questions that probe the breadth and depth of basic knowledge and critical thinking skills of the candidate, including past course work. A grade of Pass or Fail will be determined by the Committee based on the written and oral portions. The Committee is also responsible for determining the topic for the research proposal. Successful completion of the Qualifying Examination requires a unanimous pass vote of the Committee members. To ensure fairness of proceedings, a representative of the Graduate Faculty who is not on the Committee may serve as an observer of the exam at the student's or Committee's request. The completed Report of the Qualifying Examination Form must be sent to the Associate Dean, College of Medicine and Life Sciences Graduate Programs. If the student fails the exam, it may be repeated at the discretion of the student's Graduate

Committee. Guidelines for preparation of the research proposal and additional information about repeating the exam in the case of a failure can be obtained from this [link].

After passing the Qualifying Examination, the student is now a Candidate for PhD and eligible to register for Dissertation Research in their research track (9990) to complete the remainder of their research activity as a graduate student. A minimum of 30 credits of Dissertation Research are required for graduation. Students must be registered for at least one credit during the semester in which they defend their dissertation. It is acceptable to defend in the summer term and be registered for courses as a medical student.

Writing and Defending the Dissertation

Typically, after three or four years of intensive research activity, the MD/PhD student has accumulated enough data to write the dissertation in preparation of its defense and completion of the PhD side of the program. The go-ahead to write and defend the dissertation is determined by the Dissertation Committee. The format of the dissertation is typically a series of chapters which may include submitted or published manuscripts as separate chapters. The College Of Graduate Studies has instructions and formatting guidelines for PhD dissertations that can be found here. The dissertation is ultimately uploaded and stored electronically to OhioLINK where it is accessible worldwide through the internet.

Re-entry to Medical School

Students should start writing well before the planned defense date and keep in mind that scheduling a defense can be difficult when dealing with the various schedules of the Dissertation Committee members.

The timing for completion and defense of the dissertation needs to correlate with the standard medical school calendar, as students will need to participate in the Bridge to Clerkship course that takes place in April.

It is possible to delay the start of clerkships by 5 or 10 weeks, but there is no utility in deferring longer than this, due to the requirement for 32 weeks of 4th year elective credit which could not be completed prior to graduation if more than 10 weeks of required 3rd year clerkships have been deferred to the 4th year. Moreover, one would still need to attend the Bridge Course. Hence, it is best to plan far in advance so that the dissertation defense occurs prior to the last week of April.

If you defend early in the semester the Biomedical Graduate Executive Committee has endorsed a plan in which the stipend will continue from the dissertation defense date until the date of re-entry to medical school provided 1) that the student continues to work on final corrections to the dissertation or other lab-related work during that time, and 2) that the duration of additional stipend coverage does not exceed the end of the semester in which you defended.

Planning for the 3rd year clerkships begins more than 6 months prior to the start of the third year. Thus, it is very important during the annual spring meeting with the MD/PhD Director (described above) to indicate one's intention to complete the dissertation and re-enter medical school in the upcoming summer, even if one is not completely certain this timeline will be met. It is easier to cancel a reserved clerkship space than to add one in later.

In addition, the student returning to medical school should re-take the week-long Bridge Course (described above) during April. Students should register for this course during the spring semester in which they are defending. The course introduces rising 3rd year medical students to life in the hospital and clinics and expectations for students.

The MD/PhD Director will notify Student Affairs and the Registrar of the student's intention to re-enter Medical School. Once the Student Affairs office has been informed of intent to participate in the following year's third year clerkships, students will be sent information by email and informed about meetings of the second year medical school class related to 3rd year registration. Students should make sure that they are on the current second year/upcoming third year email list so that they do not miss important communications.

It is critical that MD/PhD students attend such meetings and pay close attention to registration instructions. Registration will occur at a preset date and time prior to the start of each semester (summer, fall, and spring). All students have the opportunity to register for their desired order of clerkships for each semester. Registration is based on a first-come, first-serve basis through an online sign-up process. In general, most students get the clerkship order they desire, but there will always be a few students who do not get their first choice. If one is dissatisfied with the results of the registration, one may either try swapping clerkships with another student or request a clerkship change by submitting a Clerkship Modification Form available through the Student Affairs office.

Although there is a perception that selection of an "easier" or "less critical" rotation early in the rotation may help students adapt to life as a clinical clerk, in practice, rotations deemed "critical" vary from student to student. Because the optimal order of clerkships is different for each individual, most students end up with an order very close to their "ideal" order. Most students find at the end of third year that the order of clerkships conferred little advantage in the context of the entire third year experience. Information about year 3 and 4 of the medical school curriculum may be found here.

In addition to the above, one needs to apply for graduation to the College of Graduate Studies in either the Spring or Summer term, depending on when the defense is planned. The website that describes the steps to apply for PhD graduation is here. This is important to remember because you will not be able to graduate without the degree audit that is triggered when you apply to graduate. This application is NOT for the commencement ceremony which will occur at the end of your MD program and when you will be awarded the dual degree of MD/PhD.

Residency Applications

Early in the 4th year of medical school, one should finalize one's choice of specialty for residency training.

For many MD/PhD students, the choice of specialty will be a natural outgrowth of research interests (or vice versa), which facilitates the combination of research and clinical interests as an academic career. However, such connections need not be obvious or standardized; there are many possible combinations that make sense for different reasons. For example, a neuroscience PhD might choose Neurology, Neurosurgery, Anesthesiology (due to the extensive neuropharmacology component in that field), Neuroradiology, Physical Medicine and Rehabilitation, Psychiatry, or other areas. Sometimes a specialty is chosen for lifestyle. It is important to realize that residency training does commit one to a clinical field and options for retraining in a different area are limited due to the lack of federal funding for additional years once a residency is chosen.

The application to a residency should clearly state career goals and how one plans to integrate clinical and research interests (if this is one's goal). A letter from one's major advisor is highly recommended - if it is absent, the program will want to know why. The student should also have letters from attending physicians in the chosen field who can comment on clinical skills. If one is interested in a specific program, one should try to arrange an elective clerkship in that program. The importance of such experiences cannot be stressed enough – they demonstrate strong interest in the program and give the faculty a chance to know the student, which will usually be beneficial to the student in the ranking process.

Residency programs are generally very interested in recruiting MD/PhD students, but some may have ambivalent feelings toward trainees who have a significant commitment to research, as they may be concerned that the future resident may not be fully committed to clinical training. It is important to realize (and to stress in interviews) that one sees residency as a critical time in one's training as a clinician and that one's primary goal in residency is to develop as a clinician.

Some residency programs (often labeled "Physician Scientist Training Programs") also offer research training in the context of residency. These programs can be very attractive, with guaranteed research time, research budgets, travel allowances, etc. However, most residencies and their certifying bodies require that the bulk of training be in clinical areas therefore these programs should be carefully and individually evaluated before committing.

Post-residency fellowships, on the other hand, often provide opportunities for clinical or basic science research and may provide a better springboard for launching into an academic career immediately after training. For that reason, the student should carefully consider what research options and mentors are available when choosing a fellowship program.

Of course, students who clearly decide that they do not want to incorporate clinical care in their careers do not need to pursue residency training. If one is certain that one's career will be

exclusively in research, a post-doctoral fellowship is the next step in training. Typically, the student who chooses to pursue this avenue should select another institution and a lab with an excellent national reputation for training outstanding scientists, high productivity, and solid funding. A wide experience during your research training enhances your research career and funding prospects.

Graduate Student Forms

All required forms can be found on the College of Graduate Studies website.

Plan of Study: Students must complete the Plan of Study for the Doctoral Degree form that outlines the courses to be taken throughout graduate training. It should be completed within one semester after the student joins a faculty mentor's lab. This form must be submitted before the student is permitted to take the Qualifying Examination.

The student must complete all courses on the Plan of Study to graduate.

The Plan of Study also needs to account for how credits earned in medical school will count toward graduate school credits. The strategy for mapping medical school course credit onto required graduate courses is as follows:

Thread 1: Cellular Diseases (20 Credits) covers the 4 "CPRA" Courses and Systems Pathophysiology

Graduate Research Advisory Committee Approval and Assurances (GRAD Form): Once it has been decide which faculty lab a student will be working in during the duration of their PhD studies the GRAD form will need to be completed. This form should be completed prior to starting research and needs to be signed by members of the committee.

Report of the Qualifying Exam: The Report of the Qualifying Exam form is completed when the students completes their Qualifying exam.

Defense Acceptance & Intellectual Protection form: The Defense Acceptance & IP Protection form is completed when the student and advisor have determined a defense date. This form should be shared with the Associate Dean of COMLS Graduate Programs. (Kandace.Williams@utoledo.edu or HSB 437B) so a public announcement can be made regarding the defense. This also alerts COMLS Graduate Programs that the student is nearing the end of their PhD work.

Approval of Dissertation: The Approval of Dissertation form is completed after a student has successfully completed and defended their dissertation.

Code of Conduct

All students are required to follow the University of Toledo Student Code of Conduct. In addition, Medical students are to follow College of Medicine and Life Sciences policies. A complete list of COMLS Policies can be found here. MD/PhD should also refer to the Biomedical Science Program Handbook for the PhD portion of their studies.

Office of Student Affairs

The Office of Student Affairs (OSA) is a wonderful resource to assist medical students as they progress through their educational programs. The OSA offers academic and career advising, leadership and professional development programming, and transformational bridge ceremonies. The OSA is located on the first floor of the Mulford Library Building on the Health Science Campus.

Student Health Care and Health Insurance

University Health Services (UHS) encompasses services for student health, employee health and acute illness care, occupational medicine and workman's compensation.

Appointments are scheduled through Family Medicine located in Glendale Medical East building across from the HSC campus by calling (419) 383-3777.

For emergency or after-hours visits go directly to the University of Toledo Medical Center Emergency Department or call 911.

UHS provides full-service care for **students** including:

- Illness visits
- Occupational exposures (i.e. needle stick injury)
- Physical examinations and immunizations to fulfill requirements for individual programs of study as well as requirements for foreign travel
- Well woman examinations including immunizations and routine contraceptive care
- Prescription management
- Mental health and counseling services through Harbor Symmetry Wellness (Emergency Mental Health services 24 hours a day 7 days a week 419-475-5338)
- Allergy injections

UToledo graduate students, undergraduate students and medical students who have a valid student ID badge and whose general fees are paid to/received by UToledo are eligible for services at UHS.

As an MD/PhD student, one will be required to have health insurance. Students at the early stages of training may still qualify to be on their parents' plans. In this case, the student can waive the University's student health insurance by logging in to the myUT portal and under the Student Tab/My Toolkit, My Registration selecting Health Insurance – Change or Waive then following the prompts and submitting required additional information. For the purpose of

health insurance, MD/PhD students are considered medical students throughout their student tenure, including the graduate student period. Further information about student health services and health insurance can be found on the Student Health and Wellness page.

Campus Safety

The Safety and Health Department has a comprehensive plan to develop, implement and monitor programs of environmental and occupational safety and health as necessary to protect the health and safety of faculty, staff, students and campus visitors, and to provide compliance with applicable regulations. This department is located in Mulford Library, Room 011 on Health Science Campus and in Transportation Center, Rooms 1200 A-D on the university's main campus.

The Rave Guardian App informs all students, faculty, and employees about emergencies. More information about the app and how to sign up can be found here.

On campus incidents involving theft of personal possession(s) as well as bodily and/or property damage arising from University related maintenance issues should be reported as soon as possible to the University of Toledo Police (Main Campus 419-530-2600; Health Science Campus 419-383-3700). Note: Reporting of such incidents does not automatically grant coverage under the University's insurance. Any threat of physical violence or actual attack should be communicated to the Toledo Police by calling 911. Suspicious behavior or circumstances should be immediately reported to UT Police at 419-530-2600 (x2600). Click here for UT's Police Department Web site.

Most students feel safe on campus at all times of the day or night, but reasonable precautions should be taken. Lab doors should be locked when the lab is empty and when one is there at night. Further, after dark, individuals should walk in pairs through the parking lot and around campus. Also, Campus Police is happy to provide an escort upon request.

Health Risks to Graduate Students in Science Research

It is the graduate student's responsibility to incorporate safe working practices into one's research. The University of Toledo is required to follow OSHA and EPA Regulations. One should work with one's mentor to ensure proper training for any work involving biological/infective hazards, radioactive compounds/isotopes, and animals. The student's mentor MUST obtain the appropriate approvals before a student can actively participate in research projects involving these hazards, even if only for a lab rotation. Please visit the Environmental Health and Radiation Safety department webpage for specific information.

Parking

All HSC medical and graduate students are charged for parking. The charge is a flat fee of $125 per semester regardless of program, level or credit hours. This amounts to $375 per year.

Every vehicle that parks on UToledo property – student, staff or visitor - is required to have a permit. The UToledo Police do not ticket for "No Permit" between 5 p.m. Friday and 7 a.m. Monday or when classes are not in session (winter break, spring break, and University holidays). However, do note that school is considered to be in session during exam weeks. Students may purchase parking permits through UT's myUT online portal. Additional information is available on UT's Parking Services website.

Organizations, Clubs, and Activities

A wide variety of student-centered organizations, clubs, and activities are available, many of which are sponsored by the COMLS. A list of student organizations can be found here.

Time Away

PhD students are entitled to 3 weeks of vacation per calendar year, while on stipend. This time is to be arranged in advance with the major advisor. If additional time off is required, this is to be arranged with the major advisor and the Associate Dean of COMLS Graduate Programs and the student's stipend will be withheld accordingly.

Major single-day holidays that employees have off are also extended to graduate students.

Sick days - notification to the major advisor by the student who is sick is mandatory at the start of the day that the student will not be in the lab. If the student remains ill at home for more than 3 days, then a Doctor's note is required.

Students may not "bank" vacation days from one year to the next, or holiday for future use.

Volunteer Experiences

Many volunteer opportunities are available and the program encourages students to get involved! Many students have found time to participate in the America Reads program, the Community Health Project, and the Community Care Clinic among others. These are organized through the Office of Student Affairs. Involvement in these activities not only looks good on residency applications, but also instills the spirit of volunteerism and service that should become part of a future doctor's professional commitment to helping others.

Travel to Meetings

MD/PhD students are strongly encouraged to take advantage of opportunities to attend regional and national meetings to present their research or participate in organizations. Funding for travel can come from a variety of sources. The College of Graduate Studies allocates funds up to $1000 for students to travel to a meeting to present their work. Students are also encouraged to apply for travel support funding through the Graduate Student

Association. Medical students are also encouraged to apply for travel support through the Office of Student Affairs.

MD/PhD Student Office

The MD/PhD student office is located in Block Health Science Building, room 378. This area can be used for studying and is a repository for donated medical textbooks. To obtain a key for the office, one must submit a Key Control Form to the police station in the basement of the Mulford Library building. The approver is Lisa Akeman, in the Dept. of Physiology and Pharmacology. She can be reached via at Elizabeth.Akeman@utoledo.edu.

MD/PhD Student Retreat

The MD/PhD program has an annual retreat to serve as an opportunity to share research, develop leadership skills, explore topics of broad interest, and foster socialization in an informal setting. The retreat has been held previously at the Maumee Bay State Park and includes oral presentations by students engaged in research, lunch, and outdoors activities.

People

Juan C Jaume, MD
Professor of Medicine
Chief of Endocrinoloyg & Director of MD/PhD Program
419.383.3707
Juan.jaume@toledo.edu

Allison Spencer, M.Ed
Administrator of COMLS Graduate Programs
419.383.4148
Allison.spencer@utoledo.edu
HSB 437A

Kandace Williams, PhD
Associate Dean for Graduate Programs, College of Medicine & Life Sciences
Kandace.williams@utoledo.edu
419.383.4135
HSB 437B

Appendix

MD/PhD Student Clinical Training Agreement

As part of their training program, M.D./Ph.D. students are expected to participate in a clinical training experience during the graduate school/research phase of their training. The goal of this experience is to reinforce preclinical information and help develop clinical skills that will be used when students transition back to the clinical clerkships after completing their Ph.D. degree requirements.

Learning objectives for this rotation are as follows:

a. Develop and improve history taking and physical examination skills.

b. Describe how to present a cogent history and physical to an attending.

c. Present the differential diagnosis, diagnostic work-up and management for common medical problems.

d. Relate patient presentations and treatments to basic pathophysiology and pharmacology

Students will work with a Clinical Mentor who will take responsibility for the clinical experience and evaluate student progress. The clinical mentor is not required to proctor all of the clinical exposures, but to ensure that the student is appropriately supervised and receives a good clinical experience. Students are expected to spend about 8 hours per month in clinical training. This can be divided into weekly 2 hour session, biweekly 4 hour sessions or an 8 hour day per month, or other arrangements as determined by the Student and Mentor. Students are encouraged to discuss the most appropriate schedule with their Research Mentor to ensure that the clinical experience does not interfere with graduate coursework or research progress. Students should see about one patient per hour of training (or more if possible), and should keep a log of patients seen, their diagnoses, and any procedures performed. Students will sign up for 1 or 2 hours of elective credit per semester, which will count toward the 4th year clinical elective credit at the rate of 2 weeks of credit for every 3 credit hours earned in this program. Clinical Mentors should not change more than once per semester.

Student Statement:

I, _____ (Student), agree to work with Dr. _____ (Clinical Mentor), for the period from _____ (start date) through _____ (end date). I agree to spend 8 hours per month in this rotation, at times mutually agreed upon between my Clinical Mentor, my Research Mentor, and myself. I understand that this is an important part of my M.D./Ph.D. training, for which I will be evaluated and graded, and will pursue this training with the same commitment as I have to other phases of my education.

_____

(Student signature) (date)

Clinical Mentor Statement:

I, _____ (Clinical Mentor), agree to work with _____ (Student) as his/her Clinical Mentor for the period from _____ (start date) through _____ (end date). I understand that my role is to provide clinical experiences and training to the student for 8 hours per month at times mutually agreed upon between myself, the Student and the Research Mentor, and to submit a brief written evaluation form describing student progress to the M.D./Ph.D. director and the Office of Student Life at the end of each semester.

_____

(Clinical Mentor signature) (date)

Research Mentor Statement:

I, _____ (Research Mentor), as the Research Mentor for _____ (Student), agree to allow him/her sufficient release time from laboratory duties to pursue the clinical training program described above. I understand that this is an important part of the Student's overall education. I will work with the Student and his/her Clinical Mentor to ensure that this clinical experience does not interfere with the Student's research progress.

_____

(Research Mentor signature) (date)

Program Director Statement:

I, Juan C Jaume, MD, Director of the MD/PhD Program, understand that the above named Faculty have agreed to work together to create a clinical training experience for the Student named above. If questions or problems arise during the course of this training experience, any of the above individuals may contact me for assistance.

_____

(M.D./Ph.D. Program Director) (date)

Please retain one copy for each signer and submit one copy each to:

Juan C Jaume, MDDirector, M.D/PhD Program
Professor of Medicine
Chief of Endocrinology
Ruppert Health Center, Room 0007 University of Toledo College of Medicine and Life Sciences
Tel: 419.383.3707

Application for COMLS Graduate Student Travel Funds

COM&LS Graduate Program office provides travel support to COM&LS graduate students, up to $1,000* total during their training, to present their dissertation research, thesis research, scholarly project work or to represent students' UT graduate program, at professional meetings.

To received funds complete the following:

- Be a registered COMLS graduate student
- Be presenting at the conference or representing UToledo in official capacity.
- Complete the below form and email to Allison.Spencer@utoledo.edu or turn in to HSB 437A along with the **Conference agenda, submitted abstract, and copy of the acceptance.**
- Go to the UT Accounts Payable – Concur Resources page http://www.utoledo.edu/offices/controller/accounts_payable/Concur.html

  You will need to:
  - Review the travel policy https://www.utoledo.edu/policies/administration/finance/pdfs/3364_40_03.pdf
  - Create a new user account, if you do not already have an account
- Create a travel request through Concur. Your department secretary can assist you in the process.
  - You will need the PI index number or your department index number.
- Book travel (airfare, hotel, conference registration. When booking lodging do not use Airbnb)- Work with your department to get travel booked.
- After travel, work with your department on travel expense report
- After travel, submit copies of final receipts to Allison Spencer at HSB 437A

*Funds are based on availability

Application for COMLS Graduate Student Travel Funds

Student Name: _____

Email Address: _____

Rocket Number: _____

Department: _____

Conference: _____

Location: _____ Dates: _____

Estimated Cost: _____ (include conference registration, airfare, lodging)

Presentation Title: _____

If not presenting state your reason for attendance:

_____

_____

All students need to have their advisor's approval to travel.

Advisor: _____

Advisor's Signature: _____ Date: _____

How will you be paying for the trip?

___Department Pcard ___PI's Pcard; Name on Pcard_____

___ Personal Credit Card

For COMLS Graduate Programs:

Prior to Travel:	**After Travel:**
Abstract Submitted	Receipts Submitted
Acceptance Submitted	Concur Travel Expense report submitted
Concur Travel Request Completed	
Approved Amount: _____	

Approved:_____

Kandace Williams, Associate Dean for COMLS Graduate Programs