

WAKE FOREST UNIVERSITY

The Graduate School of Arts and Sciences, Biomedical Sciences

Molecular Medicine and Translational Science (MMTS) PhD Program Policies & Procedures

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CHOOSING A THESIS LABORATORY

1. SCOPE

- 1.1. The purpose of this policy is to establish a process for prospective MMTS PhD program students in Track 4 to follow in making the decision on the best laboratory in which to conduct his/her dissertation research. This policy will follow the Track 4 policies and encourage dialog among the graduate student, a potential mentor, the Molecular and Cellular Biosciences Track Director, and the MMTS PhD Program Directors with regard to which lab is the best fit for the student.
- 1.2. MD/PhD students should follow the policies for laboratory rotations described by the MD/PhD program.

2. POLICY

- 2.1. The student should meet and talk in general terms with the mentor of the lab(s) she/he wishes to work in, but without commitment. The following criteria are suggested when considering a lab for thesis work and should be discussed with the Principal Investigator of the lab(s) being considered.
 - 2.1.1. Is there space in the PIs lab to accommodate a graduate student?
 - 2.1.2. Does this PI have funding to support a graduate student?
 - 2.1.3. Is there a project in this lab on which a graduate student could conduct dissertation research?

The student should also ask for a description of possible projects.

- 2.2. Once the MCB Track Director has the student preferences for three 1st year rotations, the Track Director will contact potential mentors to determine if adequate resources are in place to support the student for the duration of graduate training and to determine the timeframe for the 1st year rotation in their laboratories. If the answer is yes on the part of the mentors, the Track Director will then notify the student to meet with the mentors and begin to plan the rotation research.
- 2.3. Once the student has selected a mentor for their PhD dissertation research and has decided to enter the MMTS program, he/she must inform the MMTS Program Directors of their decision to join the MMTS graduate program for their PhD dissertation research.
- 2.4. Once the MMTS student has chosen a lab for his/her PhD dissertation research, the student and advisor must meet and complete the [MMTS Individualized Compact Plan](#) outlining expectations during PhD training. The student will also complete the [Expectations and Responsibilities for Graduate Students](#) form. The completed Compact is signed by the student and advisor and the Expectations and Responsibilities for Graduate Students form is signed by the student. Within the first month in the lab, both original forms are to be sent to the MMTS administrator for review by the program directors and will be placed in the student's file.
- 2.5 In the unlikely event that none of the three 1st year rotation mentors can accept the student for PhD dissertation research, then the student can perform a 4th summer rotation.

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MMTS PhD CURRICULUM AND PROGRAM REQUIREMENTS (FOR STUDENTS ENTERING FROM TRACK 4, MOLECULAR AND CELLULAR BIOSCIENCES)

1. SCOPE

1.1. This policy summarizes the current curricular and program requirements for students who enter the MMTS program from Track 4, Molecular and Cellular Biosciences, to obtain the PhD degree.

2. POLICY

2.1. YEAR ONE as a Molecular and Cellular Biosciences student:

- Take the MCB curriculum in fall and spring and include Foundations of Translational Science (MCB 752) as a spring elective.
- Perform research rotations with potential mentors.
- Choose the MMTS program and advisor by the end of the spring term.
- Take Research (MMTS 791) in the summer term and choose Clinical Mentor during summer semester.

2.2. YEAR TWO as a MMTS student:

2.2.1. Course work

- **Fall-** Take Translational Science Seminar (MMTS 711), Statistics (choice of THSS 730, IPP 741-cross listed NEUR 741 or HES 721 – on Reynolda Campus-contact Registrar for permission), Research (MMTS 791), Clinical Experience (MMTS 715), and electives, if applicable.
- **Spring-** Take Translational Science Seminar (MMTS 712), Scientific Development and the Business of Science (MMTS 724), Research (MMTS 792), Clinical Experience (MMTS 716), and Foundations of Translational Science (MCB 752), if not taken in year one.
- **Summer-** Take Research (MMTS 791) and prepare for Preliminary Exam in summer term.
- **Fall/Spring semesters-** Students are encouraged to participate in a Journal Club that matches their research interests.
- **Preliminary Exam-** Take the preliminary examination by September 1st at the end of the second year (beginning of the third year). Follow MMTS policies in this manual and the policies of the graduate school (see Wake Forest University Graduate School of Arts and Sciences Bulletin) for taking the exam.

2.2.2. Student Committee selection – choose an advisory committee

In consultation with the mentor and the Co-Directors of the MMTS graduate program, a faculty advisory committee should be appointed during the first year in the program, by the end of the fall semester of Year Two, following the guidelines for committee composition stated in the Bulletin of the Graduate School of Arts and Sciences. **All members of the advisory committee should be members of the graduate faculty.** Refer to Committee selection section on page 13.

2.3. YEAR THREE AND BEYOND as a MMTS student:

- Course work- Take Translational Science Seminar (MMTS 711, 712) and Research (MMTS 791/792) in the fall, spring, and summer semesters.
- Research Advisory Committee meetings- Meet with Research Advisory Committee at least once a year to review progress towards the PhD degree. More frequent meetings (~6 months) may be necessary in years 4 and beyond as the student gets closer to anticipated final defense date.

- Publication requirement- Students are required to publish at least one first author manuscript based on their dissertation research prior to graduation (see Publication Requirement for PhD degree in this Manual).
- Follow graduate school guidelines for registration for final semester before graduation.
- If a student changes laboratories and mentors after a successful preliminary examination, a new Research Advisory Committee will be formed and the student will provide them with a written Specific Aims page for the new project prior to their first new committee meeting. A new preliminary examination is not required
- Follow graduate school guidelines (see Wake Forest University Graduate School of Arts and Sciences Bulletin) for preparation of dissertation and final dissertation defense.
- Students are encouraged to participate in a Journal Club that matches their research interests and additional courses as needed (e.g., if student is supported by specific NIH T32 or other training programs).

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MMTS MS CURRICULUM AND PROGRAM REQUIREMENTS (FOR STUDENTS WHO ENTER THE PROGRAM WITH THE MD, DVM or DO DEGREE)

1. SCOPE

- 1.1. This policy summarizes the current curricular and program requirements that students who have the MD, DO, or DVM degree must complete to obtain the MS degree in MMTS. A Master's degree in Biomedical Sciences is also available to non-physicians through the Wake Forest Graduate School. <https://school.wakehealth.edu/Education-and-Training/Graduate-Programs/Biomedical-Science>

2. POLICY

2.1. YEAR ONE (Fall, Spring, Summer):

2.1.1. **Select a thesis research mentor.** Students should choose a thesis research mentor and a research project before entering the MMTS MS program and must be able to devote at least 50% of their faculty, residency or fellowship effort to research. The choice of mentor must be approved by the Co-Directors of the MMTS graduate program. Follow the guidelines for committee composition stated in the Bulletin of the Graduate School of Arts and Sciences.

2.1.2. Course work-

- Take MCB 700 (Analytical Skills) in the 2 weeks preceding the fall semester.
 - Take MCB 701/702 (Molecular and Cellular Biosciences) in the fall and spring semesters. MCB 701/702 may be exempted with:
 - Consent of your advisor
 - Evidence of prior satisfactory completion of a similar course with completed WFU Graduate School course transfer form and a copy of the course syllabus from your prior institution.
 - Ethics and professionalism coursework is required for all MS students
 - Take an Ethics course in the fall and spring semesters, choice of THSS 703/704 or GRAD 713 (Foundations of Scientific Integrity and Professionalism)/GRAD 714 (Scientific Integrity and Professionalism).
 - Take GRAD 716 (Seminars in Professional Development).
 - GRAD 716 may be exempted with evidence of prior satisfactory completion of a similar course with completed WFU Graduate School course transfer form and a copy of the syllabus from your prior institution. The students should always consult with their advisor for selection of courses that best fit the training program.
 - Take MMTS 711/712 (Translational Science Seminar) in the fall and spring semesters.
 - Take MMTS 724 (Scientific Development and the Business of Science) in the spring semester.
 - Choose electives in the fall and spring semesters. The Graduate School of Arts and Sciences requires completion of at least 24 hours of didactic coursework (not Research) for the MS degree.
 - Take Research (MMTS 791/792) in the fall, spring, and summer semesters.
- 2.1.3. **Choose an advisory committee.** In consultation with the mentor and the Co-Directors of the MMTS graduate program, a faculty advisory committee should be appointed during the first year in the program, following the guidelines for committee composition stated in the Bulletin of the Graduate School of Arts and Sciences. All members of the advisory committee should be members of the graduate faculty. MS advisory committees should consist of four (4) faculty members. Refer to Committee selection section on **page 13**.

Students are encouraged to participate in a Journal Club that matches their research interests.

2.2. YEAR TWO:

2.2.1. Course work-

- Take Translational Science Seminar (MMTS 711/712) in the fall and spring semesters.
- Take Research (MMTS 791/792) in the fall, spring and summer semesters.
- Take a course in statistics (choice of THSS 730, IPP 741-cross listed NEUR 741 or HES 721 – on Reynolda Campus-contact Registrar for permission) in the fall semester.
- Take any needed electives in the fall and spring semesters.

2.2.2. Thesis defense-

- Prepare thesis and take final examination, following the guidelines described in the Bulletin of the Graduate School of Arts and Sciences. The goal is for MS students to defend their thesis prior to the end date of the funding support.
- MS students are encouraged to publish at least one manuscript based on their thesis research.

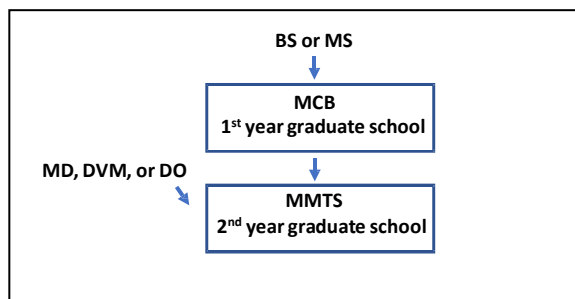
Students are encouraged to participate in a Journal Club that matches their research interests.

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MMTS PhD CURRICULUM AND PROGRAM REQUIREMENTS (FOR STUDENTS WHO ENTER THE PROGRAM WITH THE MD, DO, or DVM DEGREE)

1. SCOPE

- 1.1. This policy summarizes the current curricular and program requirements that students who have the MD, DO, or DVM degree must complete to obtain the PhD degree in MMTS. Based on the advanced degree, MD, DO, or DVM students will enter as a MMTS second (2nd) year PhD student (see figure).



2. POLICY

2.1. YEAR TWO (Fall, Spring, Summer):

- 2.1.1. **Select a thesis research mentor.** Students should choose a dissertation research mentor and a research project before entering the MMTS PhD program and must be able to devote at least 50% of their faculty, residency or fellowship effort to research. The choice of mentor must be approved by the Co-Directors of the MMTS graduate program.

2.1.2. Course work-

- Take MCB 700 (Analytical Skills) in the 2 weeks preceding the fall semester.
- Take a course in statistics (choice of THSS 730, IPP 741-cross listed NEUR 741 or HES 721 – on Reynolda Campus-contact Registrar for permission) in the fall semester.
- Ethics and professionalism coursework is required for all PhD students, though typically taken in the first year of study.
 - Take an Ethics course in the fall and spring semesters, choice of THSS 703/704 or GRAD 713 (Foundations of Scientific Integrity and Professionalism)/GRAD 714 (Scientific Integrity and Professionalism).
 - Take GRAD 716 (Seminars in Professional Development).

GRAD 716 may be exempted with evidence of prior satisfactory completion of a similar course with completed WFU Graduate school course transfer form and a copy of the syllabus from your prior institution. The students should always consult with their advisor for selection of courses that best fit the training program.

- Take MMTS 711/712 (Translational Science Seminar) in the fall and spring semesters.
 - Take MMTS 724 (Scientific Development and the Business of Science) in the spring semester.
 - Choose electives in the fall and spring semesters. There are no minimum hours of didactic coursework required for completion of the PhD degree.
 - Take Research (MMTS 791/792) in the fall, spring, and summer semesters.
- 2.1.3. **Choose a PhD Dissertation Committee.** In consultation with the mentor and the Co-Directors of the MMTS graduate program, a **PhD Dissertation Committee** should be appointed by the end of the

fall semester of matriculation into the MMTS program. Refer to “Student Committee selection” section on **page 13**.

- Research Advisory Committee meetings- Meet with Research Advisory Committee at least once a year to review progress towards PhD degree. More frequent meeting (~6 months) may be necessary as the student gets closer to anticipated final defense date.

2.1.4 PhD students take the preliminary exam by September 1st at the end of Year 2 (refer to the section on Preliminary Examination in this Manual).

Students are encouraged to participate in a Journal Club that matches their research interests

2.2. YEAR THREE AND BEYOND:**

- Take Translational Science Seminar (MMTS 711/712) in the fall and spring semesters.
- Take Research (MMTS 791/792) in the fall, spring and summer semesters.
- Take any needed electives in the fall and spring semesters.
- Follow graduate school guidelines for registration for final semester before graduation.
- Prepare thesis/dissertation and take final examination, following the guidelines described in the Bulletin of the Graduate School of Arts and Sciences. Completion of the PhD degree should be in 3-5 years.
- PhD students are required to publish at least one first author manuscript based on their dissertation research (see Publication Requirement for PhD degree in this Manual).

**** EXCEPTION for MMTS PhD students in the Orthopaedic Physician Scientist Program-** Students may take a leave of absence from graduate school beginning as early as the spring semester of their first year of Orthopaedic Surgery residency through the completion of their second year of residence to focus on clinical rotations and duties. When the leave of absence is completed, students must reenter the MMTS PhD graduate program at the beginning of summer or fall semesters according to graduate school calendar.

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MMTS PhD CURRICULUM (FOR STUDENTS IN THE COMBINED MD/PhD PROGRAM)

1. SCOPE

- 1.1. This policy summarizes the current curricular and program requirements that students who are in the combined MD/PhD program must complete in order to obtain the PhD degree in MMTS.

2. POLICY

2.1. YEARS ONE AND TWO:

- 2.1.1. Perform two lab/research rotations – one in the summer before the Year One of the medical curriculum and one in the Summer between Years One and Two.
- 2.1.2. Complete Years One and Two of medical school curriculum.
- 2.1.3. Select a dissertation research mentor before the end of Year Two, following the guidelines in the “Choosing a Thesis Laboratory” policy in this Manual (page 3).
- 2.1.4. Complete first clinical rotation of Year Three of medical school (3 months).

2.2. YEAR THREE (Fall, Spring, Summer):

2.2.1. Course work-

- Take MCB 700 (Analytical Skills) in the 2 weeks preceding the fall semester.
- Take a course in Statistics (choice of THSS 730, IPP 741-cross listed NEUR 741 or HES 721 – on Reynolda Campus-contact Registrar for permission) in the fall semester.
- Ethics and professionalism coursework is required for all PhD students, though typically taken in the first year of study.
 - Take an Ethics course in the fall and spring semesters, choice of THSS 703/704 or GRAD 713 (Foundations of Scientific Integrity and Professionalism)/GRAD 714 (Scientific Integrity and Professionalism).
 - Take GRAD 716 (Seminars in Professional Development).

GRAD 716 may be exempted with evidence of prior satisfactory completion of a similar course with completed WFU Graduate school course transfer form and a copy of the syllabus from your prior institution. The students should always consult with their advisor for selection of courses that best fit the training program.

- Take MMTS 711/712 (Translational Science Seminar) in the fall and spring semesters.
- Take MMTS 724 (Scientific Development and the Business of Science) in the spring semester.
- Choose electives in the fall and spring semesters. Electives supportive of the research proposal are highly recommended.
- Take MMTS 791/792 (Research) in the fall, spring, and summer semesters.

2.2.2. Choose a PhD Dissertation Committee- Refer to Committee selection section on **page 13**.

2.2.3. Students are encouraged to participate in a Journal Club that matches their research interests.

2.3. YEARS FOUR AND FIVE:

- Course work- Take Translational Science Seminar (MMTS 711, 712) and Research (MMTS 791/792) in the fall, spring, and summer semesters.
- Preliminary Exam- Take the preliminary examination as soon as possible during Year Four. Follow MMTS policies in this manual and the policies of the graduate school (see Wake Forest University Graduate School of Arts and Sciences Bulletin) for taking the exam.

- Research Advisory Committee meetings- Meet with Research Advisory Committee at least once a year to review progress towards PhD degree. More frequent meeting (~6 months) may be necessary as the student gets closer to anticipated final defense date.
- Publication requirement- Students are required to publish at least one first author manuscript based on their dissertation research prior to graduation (see Publication Requirement for PhD degree in this Manual).
- Follow graduate school guidelines (see Wake Forest University Graduate School of Arts and Sciences Bulletin) for preparation of dissertation and final defense of dissertation.
- Follow graduate school guidelines for registration for final semester before graduation. If needed, students may continue their research during Years Three and Four of the medical school curriculum, but are highly encouraged to complete their project and defend their dissertation before returning to medical school.

2.4. YEARS SIX AND SEVEN:

- Complete Years Three and Four of the medical school curriculum, typically entering Year Three in the spring.

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STUDENT COMMITTEE SELECTION

Student Committee selection

- Choose a PhD Dissertation Committee that will serve as the student's: a) Preliminary Examination Committee, b) Research Advisory Committee, and c) Final Defense Committee with the following distinctions.
 - Preliminary Examination Committee- The Student's Preliminary Examination Committee must consist of at least four (4) members, including the PhD advisor, the clinical mentor, and at least two other committee members chosen by the student and his/her advisors, one of whom will serve as committee chair. The chair of this committee cannot have a primary appointment in the same Institute (e.g., Wake Forest Institute of Regenerative Medicine), Center, Department, or Section as the primary mentor. Faculty composition of the committee must be approved by the MMTS Program Directors; the advisor and at least one committee member must be a faculty member in the MMTS program, and **all must be members of the Wake Forest University Graduate Faculty**. The clinical mentor must hold an MD, DO, or DVM degree.
 - Research Advisory Committee- The Preliminary Examination Committee will become the student's Research Advisory Committee following advancement of the student to PhD candidacy. The purpose of the Research Advisory Committee is to periodically monitor the student's progress toward completion of the PhD degree and to assist in professional development. The Research Advisory Committee must meet at least once a year after the student advances to PhD candidacy, but may need more often depending on the guidance needs of the student. The chair of this committee cannot have a primary appointment in the same Institute (e.g., Wake Forest Institute of Regenerative Medicine), Center, Department, or Section as the primary mentor.
 - Final Defense Committee- The Final Defense Committee is appointed by the Dean of Wake Forest University Graduate School of Arts and Sciences based on the recommendations of the student and primary mentor. The Final Defense Committee must consist of at least five (5) members of the Graduate Faculty. The chair of this committee cannot have a primary appointment in the same Institute (e.g., Wake Forest Institute of Regenerative Medicine), Center, Department, or Section as the primary mentor. Faculty from outside institutions may be appointed to the Final Defense Committee with approval by the student's PhD advisor and the Dean of the Graduate School.
 - NOTE- If the student wants to have the Preliminary Examination Committee continue as the Research Advisory Committee and, ultimately, Final Defense Committee, then he/she should consider the requirements of the Final Defense Committee stated above. In some instances, faculty members may be added to the Research Advisory Committee to provide expert advice on experimental design and approaches, but not all members of the Research Advisory Committee are required to participate in the Preliminary Examination (for MMTS this will be 4 members minimum) or the Final Defense (5 members minimum), as long as the minimal standards of the graduate school requirements are met.
- Research Advisory Committee meetings- Meet with Research Advisory Committee at least once a year to review progress towards PhD degree. More frequent meeting (~6 months) may be necessary as the student gets closer to anticipated final defense date.

Responsibilities for PhD Dissertation Committee

PhD Dissertation Committee:

- Will function as Preliminary Examination Committee; chair and members may be replaced or added as needed.
- Will have annual meetings to assess student's progress.
 - The MMTS graduate student will complete [FORM A, MMTS PhD Program Student Progress Report](#) and forward it to their PhD Dissertation Committee chair for review.
 - The student will complete top portion and the committee Chair will complete the [MMTS GRADUATE STUDENT COMMITTEE EVALUATION FORM](#) after the committee meeting. The completed forms will be signed by the student, the advisor and the committee chair and forwarded to MMTS Graduate Program Administration.
 - The student will complete top portion and the Chair reviews and completes, with committee input, the student's [MMTS PhD CANDIDATE PRELIMINARY EXAM AND POST-EXAM DEVELOPMENT PLAN](#) to determine whether satisfactory progress has been made to rectify deficiencies identified during the Preliminary Examination. If all deficiencies have been addressed, no further action on the Plan is necessary. The completed and signed form is to be forwarded to the MMTS Graduate Program Administration. If deficiencies still exist, the committee will discuss additional courses of remediation, detail the remediation plan in the [MMTS GRADUATE STUDENT COMMITTEE EVALUATION FORM](#), and return the signed forms to the MMTS Graduate Program Administration. Student progress on the remediation plan will be reviewed and discussed at the next annual committee meeting.
- Will function as Final Defense Committee; chair and members may be replaced or added as needed.

Chair of the Preliminary Examination Committee:

- Should review the Bulletin of Wake Forest University for The Graduate School of Arts and Sciences Preliminary Examination requirements and MMTS Policies and Procedures on MMTS website.
- At the time of the Preliminary Examination meeting, the Chair reviews [FORM A -Summary of Student's Progress](#) to date that has been filled out by the graduate student.
- At the end of the Preliminary Examination meeting, the Chair fills out the [MMTS PhD CANDIDATE PRELIMINARY EXAM AND POST-EXAM DEVELOPMENT PLAN](#), reflecting the input from the committee, and sends a signed copy to the student and MMTS Graduate Program Administration.
- At the end of the Preliminary Examination meeting and the student's advancement status is confirmed, the application form for **CANDIDACY FOR DOCTOR OF PHILOSOPHY DEGREE** is accessible in Canvas in the MMTS Program Canvas page. Click on Modules then find Academic Progress workflow which will navigate you through all of the required components for completion. The student initiates the form and it will then route to appropriate departments. If you need assistance, contact the Graduate School.

Chair of the Final Defense Committee:

- Should review the Bulletin of Wake Forest University for The Graduate School of Arts and Sciences final examination requirements.
- At the time of the final examination meeting, the Chair fills out the ballot for awarding the degree and submits it to the Graduate School. (contact the graduate school with questions)

MOLECULAR AND CELLULAR BIOSCIENCES, (TRACK 4) MASTERS STUDENTS TRANSITIONING TO MMTS PhD PROGRAM

1. SCOPE

1.1. This policy summarizes the program requirements for MS students who enter the Molecular Medicine and Translational Science program from Track 4, Molecular and Cellular Biosciences to obtain the PhD degree.

2. POLICY

2.1. Biomedical Science Students who would like to remain in the lab in which they are doing their MS work:

2.1.1. If the PI is agreeable to the student doing their PhD thesis work in the lab and can supply stipend support, the student will complete their master's degree, MCB core course requirements and apply to the Graduate School for acceptance. MD or DVM students are not required to complete the MS degree, but must obtain approval from the graduate school. MCB will make a decision for acceptance in consultation with the MMTS Executive Committee and both MCB and MMTS must grant approval.

2.1.2 Students who complete their Master's work in either December or May can enter the PhD program "off-cycle" in the spring semester or summer session.

2.1.3 In addition to the online application to the Wake Forest University Graduate School, students must submit to the Graduate Committee a transcript of course work taken at WFSM. The student will request a letter of support from the faculty mentor that includes a statement of commitment for financial support during the doctoral training period. A letter from the MS thesis committee chair must also be included that describes the student's performance during their MS work and supports entry into the PhD program. The student will submit a new personal statement of research interest that will feature a description of their MS work and how this will be continued during the PhD studies.

2.1.4. If a student is accepted into the PhD program, and has already completed the MCB core course requirements, the student will be required to complete the MMTS curriculum and complete their Preliminary Examination within 12 months of entering the program (refer to Preliminary Examination for Admission to PhD Candidacy; **page 24**). The student will be exempt from laboratory rotations. Students will also fulfill requirements of PhD candidates such as MMTS Seminar presentations and committee meetings as recommended by their newly selected PhD Dissertation Committee.

2.2. Students who would like to do their PhD work in a laboratory other than their MS work lab:

2.2.1. These students would apply to the MCB track through the same process as all other applicants and be considered with the overall pool of applicants for the next entering class (fall admission only). They would do three rotations during their first year and work toward completion of all other requirements. The coursework will be decided on a case-by-case basis depending on the prior classes and reviewed by the Curriculum Committee with final approval by the MMTS Executive Committee.

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MMTS GRADUATE STUDENT ANNUAL RESEARCH PROGRESS EVALUATIONS

1. SCOPE

The purpose of this policy is to establish a mechanism for obtaining a periodic evaluation of the MMTS graduate student research progress by the graduate program director(s), the graduate student PhD Dissertation Committee and the graduate student research/thesis mentor. The policy applies to all students in the MMTS program.

2. POLICY

2.1. Student progress will be reviewed periodically by one or more of the following: the graduate program director(s), the student's thesis mentor and the student's PhD Dissertation Committee. A critical part of the program director evaluation will be the student's CV. The student evaluation includes:

2.1.1. Student **CV**

2.1.2. [MMTS Form A](#) (Student's Progress Report) and [MMTS Form B](#) (Evaluation of Mentor)

2.1.3. **Wake Forest University Graduate School of Arts and Science Student Laboratory Research Assessment Form**

2.2. The *Curriculum Vitae (CV)* is the responsibility of the student and helps develop the skill of maintaining written evidence of progress. The CV should be maintained in hard copy as well as electronic copy by both the student and the MMTS program administrative office along with hardcopy and electronic copies of Form A and Form B. The submission of the CV, Form A and Form B will be required only once a year and at the beginning of the summer semester. A recommended Curriculum Vitae (CV) template can be found on <http://intranet.wakehealth.edu/Departments/Faculty-Affairs/Promotion-and-Tenure/> and will follow the format of the faculty of Wake Forest School of Medicine

2.3. The CV, combined with the student's grades, MMTS evaluation forms and Graduate School evaluation forms, provides a basis for letters of support from the student mentor and the program director(s) when seeking grant funding, post-graduate positions, and other requests.

3. The student evaluations will occur as follows:

3.1. MMTS students before appointment of a faculty PhD Dissertation Committee will be evaluated by the graduate program director(s). The student will complete an electronic form of their semester evaluation (Graduate School Student Laboratory Research Assessment Form) from the laboratory that they have selected to conduct their thesis research. At the beginning of the summer semester, the student will provide a self-evaluation by completing [FORM A: MMTS Program Student's Progress Report](#), which is for the productivity of the past academic year only, and then forward the form to their thesis/dissertation mentor. Each student will complete a confidential evaluation of their mentor by completing [FORM B: MMTS Program Student's Form for Evaluation of the Mentor](#) at the beginning of the summer semester. A student's **CV** will be submitted only once a year at the beginning of the summer semester. The student must forward all completed forms to MMTS administration. The student has the option of a face-to-face meeting with the graduate program director(s), or the graduate program director(s) has the option of requesting a meeting with the student. This meeting will be used to discuss the student CV, any questions about forming the student PhD Dissertation Committee, a tentative Preliminary Examination date, and plans for the coming year.

3.2. MMTS students after appointment of a PhD Dissertation committee will be evaluated on an annual basis by the graduate program director(s). The PhD Dissertation Committee Chair, in conjunction with the other committee members, will provide an evaluation at the initial and annual committee meetings, or more frequently if necessary, by completing the areas indicated on the [MMTS Graduate Student Committee Evaluation Form](#).

The student's thesis/dissertation mentor will provide an evaluation of the student's progress at the end of the spring semester, summer session, and fall semester by completing an electronic version of the **Graduate School Student Laboratory Research Assessment Form**, which the student initiates. (Contact the Graduate School with any questions).

A student's **CV** will be submitted only once a year at the beginning of the summer semester. At the beginning of the summer semester each year, the student will provide a self-evaluation by completing [FORM A: MMTS Program Student's Progress Report](#), which covers productivity of the past academic year only, and then forward the form to the MMTS administration and their thesis/dissertation mentor. Each student will complete a confidential evaluation of their mentor by completing [FORM B: MMTS Program Student's Form for Evaluation of the Mentor](#) and forward the form to the MMTS administration. During the summer semester, the student has the option of a face-to-face meeting with the graduate program director(s) or the graduate program director(s) has the option of requesting a meeting with the student. This meeting will be used to discuss the student CV and their plans for the coming year. A copy of completed Graduate School forms will be shared with the MMTS administrative office.

APPROVAL REQUIRED:	Majority Vote of the MMTS Executive Committee
INITIAL ISSUE APPROVAL DATE:	03/17/2007
APPROVED BY:	MMTS Executive Committee
REVISION APPROVAL DATE:	05/21/2009, 11/20/2009, 12/17/2009, 04/15/2010, 04/19/2012, 07/17/2013, 02/18/2014, 05/20/15, 06/17/15, 09/20/17, 02/20/19

SUMMARY OF THE MMTS GRADUATE STUDENT RESEARCH PROGRESS EVALUATION FORMS

Upon completion, all forms should be electronically forwarded to Molecular Medicine & Translational Science (MMTS) Graduate Program Administration. If electronic transmission of the forms is not possible, hard copies should be forwarded to MMTS Graduate Program Administration, 3rd floor, Wake Forest Biotech Place

Who is being evaluated?	When does the evaluation occur?	Which form to complete for the evaluation?	Who completes the evaluation form?
MMTS grad student	At the beginning of the Summer semester each year.	FORM A MMTS Program Student Progress Report (Electronic fillable form – no handwriting)	The MMTS graduate student will complete FORM A and then forward it to their mentor and MMTS Graduate Program Administration .
MMTS grad student mentor	At the beginning of the summer semester of each year.	FORM B-MMTS PhD Program Student's Form for Evaluation of the Mentor (Confidential) (Electronic fillable form – no handwriting)	The MMTS graduate student will complete FORM B and then forward to MMTS Graduate Program Administration .
MMTS grad student at the time of the initial and/or annual advisory committee meeting.	At the initial or annual advisory committee meetings.	MMTS Graduate Student Committee Evaluation form (Electronic fillable form – no handwriting)	The MMTS graduate student will complete the upper portion and then forward the entire form to their committee chair to complete in conjunction with the committee . The completed forms will be signed by the student , the advisor and the committee chair and then forward to MMTS Graduate Program Administration .
MMTS grad student at the time of the preliminary examination meeting	At the time of the <u>preliminary examination</u> . The Committee Chair completes immediately following the <u>preliminary examination</u>	MMTS PhD Candidate Preliminary Exam and Post-Exam Development Plan form (Electronic fillable form – no handwriting)	The MMTS graduate student will complete the upper portion and forward the entire form to their committee chair to complete in conjunction with the committee. The completed forms will be signed by the student and the committee chair and then forward to MMTS Graduate Program Administration .
MMTS grad student	An electronic Graduate School Student Research Evaluation Form to be provided to students at the end of each semester and reviewed with research mentor to determine expectations for the semester. Students are required to make certain that their advisor completes form by the last day of final exams at the end of each semester	Wake Forest University Graduate School of Arts & Sciences Student Laboratory Research Assessment Evaluation Form. The electronic form will be sent by the Graduate School. <i>A Curriculum Vitae (CV)</i> will be submitted at the beginning of the summer semester only.	The MMTS student will initiate by completing the top portion of the form and the MMTS mentor will complete form prior to the last day of final exams at the end of each semester. (Contact the Graduate School with any questions. The CV is only requested once a year which will be at the beginning of the summer semester.

FORM A:

MMTS Program Student's Progress Report Form

This annual progress report is for productivity for the past academic year only

Reporting Date:

Student Name:

Mentor Name:

Last Committee Meeting:

Chair of Dissertation Committee (leave blank if no committee has been appointed):

Dissertation Committee Members (leave blank if no committee has been appointed):

Month and Year entered the MMTS program:

Current year in MMTS program:
(i.e. 2nd yr. PhD student, 4th yr. PhD Candidate)

ACADEMIC PRODUCTIVITY (to be completed by the student)

Course Work (students should attach a copy of their most current transcript):

GPA _____

Has all required coursework been completed? Yes _____ No _____

If no, what is still required?

RESEARCH PRODUCTIVITY (to be completed by the student)

What presentations (local, national, international; poster or talk) has the student made? Please detail.

Has the student published (abstracts, full-length research articles, review articles)? Please list.

Has the student submitted or had any grants funded or received funding? Please list.

Has the student participated in the submission of a patent?

When is the student projected to complete the PhD degree?

(Annual Progress Report: Forward completed form to Mentor and MMTS Graduate Program Administration)

FORM B

MMTS Program Student's Form for Evaluation of the Mentor

Mentor: _____ Date: _____

Student: _____

All students: Please evaluate your thesis mentor annually at the end of the spring semester and return the completed form to MMTS program administration

Responsibilities for Mentors

- Assist the student in developing a research project
- Guide the student in evaluation of the literature concerning the project
- Teach specific research techniques
- Help prepare student for oral presentation at the Translational Science Seminar Series and attend the presentation

1. How well has the thesis mentor explained the goals of the project?

Goals discussed with the student should include:

- The medical/biological problem
- The hypotheses to be tested
- The experimental approach / possible outcomes

2. Did the thesis mentor discuss your data with you? Were the following questions asked during discussion of experiments?

- Why did you follow this particular path?
- What protocol changes did you make as your work went on?
- What type of data did you obtain?
- How did you analyze your data?

3. Did the thesis mentor help prepare the presentation of your data and the significance of your findings?
Did you discuss the following in relation to your findings?

- How to present your data with tables, figures or illustrations
- Explanation of the medical/biological impact of your results
- What questions remain/what experiments could answer those questions?

4. Did the thesis mentor attend your presentation or arrange for someone in the laboratory to be present at your seminar?

Student signature

Molecular Medicine and Translational Science Graduate Student Committee Evaluation form
(Initial and Annual Committee meetings)

Student name: _____ Date: _____

Advisor: _____

Committee members: Chair: _____

Students are to complete this section. Send Word version to Committee Chair to complete. Type in this form only, no handwriting.

1. Overall evaluation of student at this time:

- Exceeds expectations
- Meets expectations
- Does not meet expectations (explain)

2. Research plans:

3. Career development plans or events (professional meetings, scheduled talks, job search, etc.)

4. Suggested grade based on progress since last committee meeting (Satisfactory or Unsatisfactory):

5. Date for next committee meeting:

6. Other comments:

Signatures:

(student)

(advisor)

(committee chair)

Return completed form to MMTS Administration

MMTS
PhD Candidate Preliminary Exam and Post-Exam Development Plan

Student name: _____ **Date:** _____

Date of Preliminary Exam: _____ **Advancement:** YES NO pending revisions

Advisor:

Committee members: **Chair:**

Other Members:

Hypothesis or Experimental Question

The student must have a hypothesis or experimental question that is clearly stated, testable, and well-justified. The rationale (scientific foundation) for this hypothesis or question must be clear, and the student must be able to defend his/her proposed hypothesis or question.

Comments:

Add rating at end of comments: Scale – 1-5 (low rate 1 – high rate 5)

Experimental Approach

The experimental approach must be clearly described and logical. The approach must directly test the hypothesis or experimental question. Discussion of expected and alternative outcomes, potential pitfalls, and alternative approaches must be included.

Comments:

Add rating at end of comments: Scale – 1-5 (low rate 1 – high rate 5)

Background Knowledge

The student must display a deep understanding of the Preliminary Exam topic and supporting literature. The student must also have broad knowledge of the general biomedical sciences and experimental approaches, especially in their specific field of study.

Comments:

Add rating at end of comments: Scale – 1-5 (low rate 1 – high rate 5)

Oral Presentation

The student must be able to clearly articulate and describe the research proposal. The student must be able to defend his/her rationale for specific approaches and respond to critiques in a professional manner. Overall oral communication skills are evaluated in this section.

Add rating at end of comments: Scale – 1-5 (low rate 1 – high rate 5)

Post-Exam Development

If deficiencies in the student's development were identified during the preliminary exam, they should be listed with a recommended course of action. The thesis committee will then monitor progress in the student's development at future committee meetings.

Chair's Signature

Date

Student's Signature

Date

Forward completed and signed MMTS preliminary exam evaluation form to MMTS Administration

Once the student's committee confirms advancement category, the Graduate School's PhD Candidacy form is accessible in Canvas in the MMTS Program Canvas page. Click on Modules then find Academic Progress workflow, which will navigate you through all of the required components for completion. The student initiates the form and it will then route to appropriate departments. If you need assistance, contact the Graduate School.

Molecular Medicine and Translational Science Graduate Program- Expectations and Responsibilities for Graduate Students

- Perform well-designed experiments that lead us to exciting and novel discoveries.
- Communicate these findings within and beyond the greater scientific community.
- Work with Program faculty, staff, and trainees to become some of the best scientists of your generation.

At All Times

- Do your very best to work both individually and as part of a team.
- Adhere to all guidelines for scientific integrity and the Graduate School's Honor Code.
- Adhere to all environmental health and safety guidelines.
- Adhere to all WFU and WFHS compliance policies (i.e., HIPPA, ACUC, computer policies).
- Be passionate about your interests, work hard and smart.
- Demonstrate common sense, careful execution, maximum efficiency, and outstanding scholarship.
- Maintain a positive mental attitude.
- Keep in mind that success in graduate school requires you to be self-motivated, and as a result, your success depends primarily on your effort, dedication, and ability.
- Scientific progress requires teamwork, so use your motivation to do your best within your laboratory to see that you and your co-workers are successful.

Professionalism

1. Arrive on time.
2. You are responsible for maintaining your own calendar. This means that if you are scheduled to attend class, see a participant, perform an experiment, or attend a seminar or meeting, you are responsible for adding that event to your calendar, setting the reminders appropriately in Outlook, and arriving at the meeting on time and prepared with no input or reminders from others.
3. You are responsible for communicating to your PI/lab/clinic supervisor if you are going to be absent. Call (or email) and leave a message or let someone know beforehand if they are expecting your presence. While you're not punching a clock, in an interdependent environment your absence may impact the plans of others (this also goes for meetings, subject/patient sessions, and experiments). Be sensitive to the time of others with whom you interact.
4. If you are going to be late, or cannot fulfill an obligation, call (or email) for the same reasons.
5. Dress appropriately. Consult lab-specific guidelines for personal protection equipment (PPE).
6. Be courteous at all times.
7. Communication is the key to a successful, collaborative work environment. This position requires a good deal of independence and self-motivation, and as a result, your success depends on good communication.
 - a. You are expected to identify problems on your own and actively seek out guidance, as you need it.
 - b. If you identify or encounter a problem, also try to present a solution. Part of your job as a trainee is to become a problem solver.
 - c. Respond to communication (emails, etc.) promptly and courteously.
 - d. If you send an email or other communication, and do not receive a response- send it again, follow-up with a phone call, or stop by the individual's office/lab.
 - e. Use correct grammar and spelling in all written communication.
 - f. Unless in situations of unexpected emergencies (see point 3 and 4 above), you are expected to get approval for time off from your advisor at least 2 weeks in advance.
 - g. Never assume. If you have a question about anything – scheduling, a protocol, a result – you are expected to bring this to the attention of your co-workers and advisor as soon as possible. Sometimes, the best way forward is to stop and get clarification.

- h. Written documentation of research is absolutely critical. You must maintain a detailed lab notebook as well as documentation required for every laboratory procedure you use (i.e., drug logs, access logs, ACUC, etc.). Save all data and files to designated servers and/or hard drives.
8. Be respectful of your colleagues' time. Everyone is busy.
 - a. Learn by observing the people around you.
 - b. Take good notes and do not expect to have things repeated to you. Most people welcome questions and are willing to recapitulate information to help you, but the expectation is that you will be attentive, learn as much as possible, and take thorough notes so that you can proceed as independently as possible.
 9. Academic medicine is hierarchical. In order to avoid offending people above you in the hierarchy, be aware of it and show deference when appropriate. Always address people as Dr. SoandSo unless they give you permission to call them by their first name.
 10. Treat everyone with respect. Everyone here from housekeeping staff to Dean plays a role in making research or medical care happen.

Making Mistakes

- Understand that everyone, including you, makes mistakes, frequently.
- Report mistakes, breakages, errors, mishaps, and damage immediately and fully. Everyone with whom you will interact values extreme honesty so that corrections can be made.
- Don't worry if something has to be replaced or repeated, that is how experiments work! We have all been there. If you aren't making mistakes, you aren't working hard.
- Learn from mistakes and move forward.

Work Ethic

Our top priority is for students to be happy and productive. To be happy, you need to make time to take care of yourself. To stay happy you need to maximize your effort/productivity ratio and feel that you are moving forward.

It is difficult to impossible to define how many hours, days, weeks, months, years it will take to complete your thesis research. We will not expect students to work every evening and weekend, although experience tells us that successful scientists rarely work a regular, 9 to 5 day, 40-hour weeks. Excellence and mastery do not come without dedication and effort.

Productivity requires both hard work and thoughtful planning and design. That means working smart — considering multiple strategies and selecting the best one. If you must do a risky experiment, do a safe one as well. Hedge your bets. Ask your mentors for advice. Discuss with the lab. Think out loud. Use your colleagues and mentors as resources.

Evaluations

Keep in mind that as a student you are constantly being evaluated in course work and the research environment. Your advisors, fellow students, lab colleagues, and other faculty members assume you are doing your very best at all times. If you encounter a problem, either at work, in class, or on a personal level - seek help! You are not alone, and there are many resources available to help you receive guidance and assistance as needed.

<http://www.wakehealth.edu/School/Counseling-Services/>

I have read and agree to my responsibilities as a graduate student in the MMTS Program

Signature of student

Date

After reviewing and signing form, the student will submit original, signed form to MMTS Program where it will be placed in the student file.

Molecular Medicine and Translational Science Graduate Program- Compact Between Graduate Students and Faculty Mentor

Pre-doctoral training entails both formal education in advanced scientific knowledge and theory as well as research training under the supervision of one or more investigators who are qualified to fulfill the responsibilities of a mentor. A positive mentoring relationship between the pre-doctoral student and the supervising professor is a vital component of the student's preparation for a successful biomedical research career.

Individuals who pursue a biomedical graduate degree are expected to take responsibility for their own scientific and professional development. Faculty who advise students are expected to fulfill the responsibilities of a mentor, including the provision of scientific training, guidance, instruction in the responsible conduct of research and research ethics, and financial support.

Within 4 weeks of formally selecting a lab and faculty mentor for dissertation research, students should have discussed with their mentor each of the topics listed below under "Defining Student and Faculty Mentor Responsibilities and Expectations" and submitted the Directors of the Molecular Medicine and Translational Science (MMTS) graduate program. To tailor an individualized compact best suited for each student and faculty mentor, specific commitments by both the student and the mentor, detailed processes, additions and specifications should either be added in the space below each topic or in an addendum as deemed appropriate.

With their signature, both faculty mentor and student confirm that all topics listed have been discussed and they are committed to uphold the principles agreed upon in this individualized compact. Once approved by MMTS program Directors, the compact will be placed in the student's file held in the MMTS graduate program administrative office.

It is understood that various aspects of the student's pursuit of their degree can change over time and therefore the compact should be reviewed regularly (at least once a year) and modified as needed.

DEFINING STUDENT AND MENTOR RESPONSIBILITIES AND EXPECTATIONS

Frequency and Methods of Communication between Faculty Mentor and Student (How often will student and mentor meet? How should updates or changes in expectations and issues be communicated?)

Research/Training Related and Professional Development of the Student (What is the student's project? Is there a specific person that will oversee training other than the PI and to what degree will the student assist with other projects in the lab? What constitutes professional development?)

Common Laboratory Responsibilities (Which tasks and duties are shared among all lab members, including the student?)

Notebooks and Data (What is the policy of the laboratory related to the storage of data and laboratory notebooks?)

Work Hours/Attendance in the Laboratory (How many hours per week is the student expected to work in the laboratory?)

Authorship Policies (What is the policy that constitutes authorship in the lab? How is the order of authors determined in a manuscript or abstract?)

Manuscripts expected for Graduation (Are there specific expectations for the number of manuscripts (published, submitted and/or in preparation), and the student's authorship position (e.g. first) on these manuscripts, required for the student to graduate?)

Intellectual Policy Issues: Disclosure, Patent Rights and Publishing Research Discoveries (What is the policy for patents that come out of the student's work?)

Selection of a Thesis/Dissertation Committee (What is the process for determining the subject of the thesis and the composition of the thesis committee?)

Attendance of Professional and Scientific Meetings (Under which conditions can a student travel to a Regional, National, or International scientific meeting? For example, only if the student or student's work is presenting? Who covers the cost and what will be covered?)

Career and Professional Development / Job Search and Placement / Individualized Career Development Plan (What is the career choice of the student and what arrangements can be made to allow the student to participate in courses, workshops, etc. for their particular interests without compromising their research training?)

Time off for Illness or University Holidays – Vacation Policy (What is the laboratory policy for vacations, holidays, and personal days?)

Conflict Resolution and Student Complaint Policies (What is the laboratory policy for conflict resolution between faculty mentor and student or student and other lab members?)

Additional Topics

We have discussed all the above topics and made the mutually agreed upon additions, specifications and changes.

We acknowledge our joint intention to re-evaluate the compact, the agreed upon milestones and the degree completion date at least once a year throughout the student's period of academic standing.

Student's Name

Signature of Student

Date

Supervising Professor's Name

Signature of Supervising Professor

Date

PRELIMINARY EXAMINATION FOR ADMISSION TO PhD CANDIDACY

1. SCOPE

- 1.1. The preliminary examination is a process used to determine the acceptability of the student for advancement to degree candidacy based on the scientific quality of the student's project, the clarity of the student's written proposal, the completeness of the literature survey, and the student's originality and understanding of relevant biomedical concepts. The MMTS PhD program uses an oral examination format of the written proposal. The student is responsible for the content of all coursework (required courses and electives) taken up to the time of the examination. PhD candidates must have a grade point average of at least 3.0 in their graduate courses at the time of the preliminary examination.

2. POLICY

- 2.1. Each student will submit a proposal of research, termed the Preliminary Examination Research Proposal. The proposal will be based on the R01-style research grant written during the required course MMTS 724, Scientific Development and the Business of Science, as outlined in detail below and will be based on the research to be performed for the PhD dissertation. The student will submit the proposal to a Preliminary Examination Committee, consisting of four or more graduate faculty members and, if approved by the Committee, the student will defend the proposal in an oral examination. The Committee judges whether the student passes or fails the examination and informs the MMTS Program Directors. **The examination must be completed no later than September 1st at the beginning of the third year (end of the second year)*.** Extension beyond this time without the agreement of the preliminary examination committee and the MMTS PhD Program Directors will put the student at risk of expulsion from the graduate school by the Dean for failure of academic progress.

* Based on the advanced degree, a MD, DVM, or DO student enters as a MMTS second (2nd) year PhD student and is expected to complete their preliminary examination by the end of their first year of graduate school.

3. PROCEDURE

- 3.1. **Preliminary Examination Committee Selection (see page 13 for more details on Student Committee selection):**
 - 3.1.1. The student's Preliminary Examination Committee must consist of at least four (4) members. These include the MD and PhD advisors and at least two other committee members chosen by the student and his/her advisors, one of whom will serve as committee chair. Advisors and committee members must be approved by the MMTS Program Directors; advisors and at least one committee member must be a faculty member in the MMTS program, and all must be members of the Graduate Faculty. The chair of the **Preliminary Examination Committee** cannot have a primary appointment in the same Institute (e.g., Wake Forest Institute of Regenerative Medicine), Center, Department, or Section as the primary mentor.
 - 3.1.2. The function of the committee is to determine acceptability of the student for advancement to PhD degree candidacy by critically evaluating the specific quality of the project, the clarity of the written proposal, the completeness of the literature survey, and the student's originality and understanding of relevant biomedical concepts. The examining committee passes or fails the student. In case of failure, the committee can recommend that the candidate be dropped or that reexamination be allowed no earlier than six months from the date of the first examination. A student may be reexamined only once.
 - 1.1. The Preliminary Examination Proposal:
 - 3.2.1 The Preliminary Examination Research Proposal should build on the NIH K- or F-grant style proposal prepared during MMTS 724 and should represent the ideas of the student, with an emphasis on significance and innovation of the project. Recognizing that the student's thesis research will be guided by the overall direction of their mentor's laboratory, the student is encouraged to work closely

with their advisor, as well as members of the advisory committee, and other faculty during the preparation of the Preliminary Examination Research Proposal. The student's advisor may review a draft of the Preliminary Examination Research Proposal and offer editorial comments but should not edit the document, as incorporating the advisor's recommendations into the proposal remains the responsibility of the student. While the proposal prepared for MMTS 724 strictly adheres to the mentored training grant page limitations (1 page for Specific Aims, 6 pages for the Research Strategy section), it is understood that the student, the advisor, or the Committee may want additional details or information to be included in the Preliminary Examination Research Proposal. Therefore, the Research Strategy section can be expanded beyond the 6 page limit, but cannot exceed 12 pages.

All students are strongly encouraged to use their Preliminary Examination Research Proposal as a basis for submission of a grant proposal to an extramural funding agency. If a grant proposal has been submitted before preparing the Preliminary Examination Research Proposal, that proposal may be used as a *basis* for developing their Preliminary Examination Research Proposal. In that case, the student should include *novel features* in the Preliminary Examination Research Proposal that build on, but go beyond, the ideas and experiments described in the extramural proposal. For example, this could include an expanded preliminary data section and/or a new or expanded aim that builds on results obtained in the period between the extramural proposal and the Preliminary Examination Research Proposal. The student should also include a copy of their extramural Specific Aims page along with their outline, for the committee to verify that the Preliminary Examination Research Proposal extends the concepts of the extramural proposal.

3.2. Forms Required:

Before the examination, the graduate student is responsible for filling out [FORM A, MMTS PhD Program Student Progress Report](#) and providing the form to the preliminary examination committee chair. Immediately following a successful preliminary examination, the committee chair, with appropriate input from the committee, will complete the [PhD Candidate Preliminary Exam and Post-Exam Development Plan](#) and forward the form to MMTS administration. An example of the evaluation form is provided on [page 22](#). This form will summarize deficiencies in the student's development that were identified during the preliminary exam (e.g., understanding of statistics, knowledge of literature, oral presentation style) and recommend a course of action to help correct student deficiencies. The student will forward the [PhD Candidate Preliminary Exam and Post-Exam Development Plan](#) to the committee chair for each subsequent annual evaluation of the student's progress until identified deficiencies have been corrected.

An application for **Candidacy for Doctor of Philosophy Degree** from Wake Forest University Graduate School of Arts and Sciences is to be completed. Once the committee confirms the student's advancement status, the Graduate School's PhD Candidacy form is accessible in Canvas in the MMTS Program Canvas page. Click on Modules then find Academic Progress workflow, which will navigate you through all of the required components for completion. The student will initiate the form and it will then route to appropriate departments. If you need assistance, contact the Graduate School.

3.3. Dates and Deadlines:

The date set for the oral exam will establish all preceding deadlines. The examining committee may revise the schedule suggested below at their discretion. The deadlines should be explicitly communicated to the student.

3.4.1 Eight weeks before the date of the oral exam, the student will submit a 1 – 2 page outline of the proposal. One week later, the examining committee will meet briefly (1 hour) with the student to discuss the acceptability of the outline and to make suggestions regarding the project. The purpose of this meeting is to guide the student in preparing for the oral examination. It is appropriate to give examples of the issues that will be raised. However, detailed questioning and defense of the proposal should be reserved for the oral examination **and is not appropriate for this preparation meeting**. If there are no major problems, the student may proceed to complete the written proposal.

3.4.2 Two weeks before the oral exam, the student will submit the completed written proposal to the

examining committee. Within 1 week, the committee chair will inform the student if the written proposal is acceptable for oral defense. If not, the committee will provide a detailed written critique and set a date for receipt of a revised proposal, usually within 2 - 3 weeks. If the revised proposal is unacceptable, the examining committee will recommend to the MMTS PhD program Executive Committee whether the student should be terminated from the PhD program.

3.4.3 If the proposal is judged acceptable, the oral exam will proceed as scheduled. The student will present a concise (approximately 20 minutes) overview of the preliminary proposal and this will be followed by questions from the examination committee. Following the exam, a decision on acceptability of the student for admission to degree candidacy will be made by the committee. In the event that a student does not pass the oral exam, the examining committee can recommend that the student be refused admission to candidacy for the PhD program, or that reexamination be allowed no earlier than six months from the date of the first exam. A student may be reexamined only once. The chair of the committee will inform the MMTS PhD program Director of the outcome of the preliminary exam. The MMTS PhD program Director then informs the Dean of the graduate office.

3.4. **Proposal Format:**

The outline and the final proposal will be patterned after NIH guidelines. The student should consult with the examining committee on questions of format during the preparation of the proposal. The proposal should be clearly written in the student's own words and should be carefully proofed for spelling and grammatical errors.

3.5.1 **Outline Format**

The outline should be **no longer than two pages** (single spaced) and should consist of the following sections:

Specific Aims: A concise statement of the specific research objectives, including the hypotheses to be tested.

Scientific Foundation: Explain the significance of the project and its originality, placed in the context of a brief summary of previous work done in the area.

Research Plan: Summarize experimental design to be used to address the specific aims, including methods to be used. References are not included in the Outline.

3.5.2 **Final Research Proposal Format**

The final research proposal should be patterned after NIH guidelines for K- or F-type proposals. The document should be in Arial 11 font with 0.5 inches margins. The student should consult with his/her examining committee on questions of format during the preparation of the proposal. However, it must be emphasized that the proposal is to have a strong emphasis on significance, innovation and approach and less emphasis on preliminary data. The final proposal should consist of the following sections and may not include an appendix:

Title Page- student's name, title of project, advisor's name, date of examination

Abstract (30 lines maximum per NIH instructions) - short summary of the problem to be addressed and the goals of the project

Specific Aims (1 page limit) - State concisely the goals of the proposed research and summarize the expected outcome(s), including the impact that the results of the proposed research will exert on the research field(s) involved. List succinctly the specific objectives of the research proposed, e.g., to test a stated hypothesis, create a novel design, solve a specific problem, challenge an existing paradigm or clinical practice, address a critical barrier to progress in the field, or develop new technology.

Research Strategy- Organize the Research Strategy in the specified order and using the instructions provided below. Start each section with the appropriate section heading - Significance, Innovation, Approach. This section (a-c) is limited to 6-12 pages total.

(a) Significance (suggest 1-3 pages)

- Explain the importance of the problem or critical barrier to progress in the field that the proposed project addresses.
- Explain how the proposed project will improve scientific knowledge, technical capability, and/or clinical practice in one or more broad fields.
- Describe how the concepts, methods, technologies, treatments, services, or preventative interventions that drive this field will be changed if the proposed aims are achieved.

(b) Innovation (suggest 0.5-1 page)

- Explain how the application challenges and seeks to shift current research or clinical practice paradigms.
- Describe any novel theoretical concepts, approaches or methodologies, instrumentation or intervention(s) to be developed or used, and any advantage over existing methodologies, instrumentation or intervention(s).
- Explain any refinements, improvements, or new applications of theoretical concepts, approaches or methodologies, instrumentation or interventions.

(c) Approach

- This section includes the Preliminary Studies. Discuss the preliminary studies, data, and/or experience pertinent to this application.
- Describe the overall strategy, methodology, and analyses to be used to accomplish the specific aims of the project. Include how the data will be collected, analyzed, and interpreted as well as any resource sharing plans as appropriate.
- Discuss potential problems, alternative strategies, and benchmarks for success anticipated to achieve the aims.
- If the project is in the early stages of development, describe any strategy to establish feasibility, and address the management of any high risk aspects of the proposed work.

References: Techniques to be used and all work and ideas of others should be properly referenced. References should include titles and follow a format approved by the committee. These are not included in the page limitations.

3.6 MMTS Preliminary Exam Standard Operating Procedures

Prior to the examination, the student is asked to leave the room so that the committee members can address any concerns or questions regarding the thesis proposal – this often does not last more than a few minutes. The student is then invited back in. During the exam, the student is expected to provide a short (~20 min) overview of their project including background/rationale, specific aims, and the experiments for the aims. The exam committee can ask questions at any time. The questions can be specific to the project but can also be general information important for the student to know to conduct and/or fully understand their project. The questioning can also evaluate the student's comprehension of statistical analysis of results and power of the experimental design. The format of this questioning can be up to the committee. Committee members can ask questions freely, or take turns asking questions (e.g., 10 minutes per committee member). The thesis advisor may decide if they want to

participate in asking questions of the student or not, but the Chair of the examining committee must make sure the advisor does not unnecessarily influence the outcome (positively or negatively) of the exam. After committee members have asked their questions, the student is asked to leave the room again. The committee discusses the proposal, the ability of the student to defend their work, their knowledge, etc., and then decides whether the student should pass. The exam usually lasts 90-120 minutes.

3.6.1. The purpose of the preliminary examination is to determine whether the student is acceptable to advance to degree candidacy. The preliminary exam proposal is not a contract for the student's PhD dissertation work and should be viewed by the examining committee as a method to test the student's ability to think under pressure, defend the scientific foundation of the proposal, and identify potential weaknesses in the student's development that need attention after advancement to degree candidacy. To accomplish this goal, the preliminary proposal is written as an NIH K- or F-grant application that is defended by the student for its significance, innovation, and approach to a scientific question. Additional clarification of the overarching principle of the preliminary exam is as follows:

- 1) The faculty committee should examine the student on the clarity of the written proposal, the scientific basis of the proposal, the understanding of relevant biological concepts, and any course work covered up to that time that may be pertinent to the proposal.
- 2) The preliminary exam proposal may or may not be on the topic of the thesis proposal. If it is on the topic of the thesis proposal, it does not need to cover the scope of the thesis proposal. The scope of the thesis proposal in consultation with the Research Advisory Committee will be determined after the student has advanced to candidacy.
- 3) Preliminary data can be included in the preliminary exam proposal but its presence or absence cannot be used to delay the examination or penalize the student.

APPROVAL REQUIRED:	Majority Vote of the MMTS PhD program Executive Committee
INITIAL ISSUE APPROVAL DATE:	
APPROVED BY:	MMTS PhD program Executive Committee
REVISION APPROVAL DATE:	01/15/2004, 02/24/2005, 05/05/2005, 09/17/2009, 11/20/2009, 12/17/2009, 04/19/2012, 05/16/2013, 07/17/2013, 02/18/2014, 06/25/2014; 02/20/19; 04/16/2024

DISSERTATION EXAMINATION FOR PhD DEGREE

1. SCOPE

- 1.1. Under the supervision of the Research Advisory Committee, which will now act as the Final Defense Committee, the candidate prepares a dissertation embodying the results of investigative efforts in the field of concentration.

2. PROCEDURE

- 2.1. Requirements for dissertation submission and format are posted in Canvas under GRAD.MMTS.Pgm.Pages (Dissertation Formatting Requirements and Electronic Theses & Dissertation (ETD) Considerations).
- 2.2. Final Defense Committee: The Final Defense Committee may be the same as the Research Advisory Committee. Members may be replaced or added as long as the overall requirements are followed. The Final Defense Committee must consist of at least five (5) members of the Graduate Faculty. These include the MD and PhD advisors and at least three other committee members chosen by the student and his/her advisors. The chair of the committee cannot have a primary appointment in the same Institute (WFIRM)/Department/Center/Section as the mentor. Faculty from outside institutions may be appointed to the committee with approval by the dissertation advisor and the Dean of the Graduate School. Final Defense Committee must be approved by the MMTS Program Directors and the Dean of the Graduate School; the advisor and at least one committee member must be a faculty member in the MMTS program, and **all must be members of the Graduate Faculty.**
- 2.3. Students will submit a copy of the dissertation to each member of the Final Defense Committee at least three weeks before the final examination. The committee is polled by the chair of the Final Defense Committee at least ten days before the proposed date of the examination to determine the acceptability of the dissertation. After the defense, the chair will ask each of the members of the examining committee whether the candidate has passed unconditionally, passed upon rectifying deficiencies, or failed. If all committee members agree that the student has passed unconditionally, there is a consensus to pass the examination. The committee chair will sign the ballot, submit the ballot to the Graduate School, and the student shall be recommended for award of the degree. For the other options (pass upon rectifying minor and major deficiencies and fail), the student and mentor are directed to the graduate school bulletin.

APPROVAL REQUIRED:	Majority Vote of the MMTS PhD program Executive Committee
INITIAL ISSUE APPROVAL DATE:	06/25/2014
APPROVED BY:	MMTS PhD program Executive Committee
REVISION APPROVAL DATE:	02/20/19, 04/07/22

PUBLICATION REQUIREMENT FOR THE PhD DEGREE

1. SCOPE

- 1.1. To establish publication criteria required for the MMTS PhD program students to proceed toward completing the PhD degree.

2. POLICY

- 2.1. Publications are one of the products upon which a successful scientific career is built. Before a student can schedule the defense of their dissertation, it is required that at least one first author publication of original data from their work as a WFU graduate student be accepted in a peer-reviewed journal. As with other policies, the dissertation committee can consider extreme circumstances if variations from this policy are justified.

APPROVAL REQUIRED:	Majority Vote of the MMTS PhD Executive Committee
INITIAL ISSUE APPROVAL DATE:	06/18/2009
APPROVED BY:	MMTS PhD Executive Committee
REVISION APPROVAL DATE:	06/20/18, 02/20/19

THESIS/DISSERTATION PREPARATION

1. SCOPE

1.1. To establish guidelines for student thesis/dissertation printing and binding.

2. POLICY

2.1. The MMTS PhD program will defray the costs of printing and binding two (2) copies of the graduate student's final, committee-approved thesis/dissertation: one (1) for the MMTS PhD student, and one (1) for the student's advisor.

2.2. The MMTS PhD program will keep an electronic copy of the graduate student thesis/dissertation in the MMTS PhD program administrative office.

2.3. Strict guidelines for preparation of the thesis/dissertation are established by the Graduate School office and should be obtained from the registrar prior to writing the thesis. These include deadlines the student must meet for the thesis/dissertation to be accepted by the Graduate School and the student's final defense committee.

APPROVAL REQUIRED:	Majority Vote of the MMTS PhD program Executive Committee
INITIAL ISSUE APPROVAL DATE:	01/15/04
APPROVED BY:	MMTS PhD program Executive Committee
REVISION APPROVAL DATE:	09/15/11, 02/20/19

MMTS 711/712: TRANSLATIONAL SCIENCE SEMINAR SERIES – PRESENTATION POLICY

1. SCOPE

1.1. To establish criteria for student presentations for the fall and spring semesters of the current academic year.

2. POLICY

2.1. All MMTS students will present one research talk during each academic year they are enrolled as a PhD student. Scheduling will be arranged by the course director in consultation with the students and their advisors. More “senior” students will present first during the academic year, continuing through to newer students. The usual format will be a 20-25-minute talk with 5-10 minutes for questions. Variations in this schedule, if needed, are at the discretion of the course director.

2.2. Students are exempt the semester they defend their dissertation, but will present a final seminar covering their PhD dissertation research in conjunction with their final defense. The final defense seminar will typically be 45-50 minutes with 5-10 minutes for general audience questions.

2.3. MDs in clinical residency/fellowship/or T32 programs are expected to participate for the first 2 years of laboratory work, but are exempted during their clinical schedules.

APPROVAL REQUIRED:	Majority Vote of the MMTS PhD program Executive Committee
INITIAL ISSUE APPROVAL DATE:	09/02/04
APPROVED BY:	MMTS PhD program Executive Committee
REVISION APPROVAL DATE:	10/19/16, 03/15/17

REQUIREMENTS FOR COURSE EXEMPTIONS FOR MMTS PhD STUDENTS

1. SCOPE

- 1.1. To establish criteria which must be met for the MMTS PhD program Curriculum Committee and Executive Committee to consider granting a required course exemption for a current MMTS PhD student.

2. POLICY

- 2.1. The course previously taken must:
 - 2.1.1. Be a graduate level course and meet the same academic standards as the equivalent WFU Graduate School course.
 - 2.1.2. Have credit hours equal to the equivalent WFU Graduate School course.
- 2.2. The student must have attained a grade of B or better (≥ 3.0) in the course.
- 2.3. The decision to grant any course exemption must be approved by the MMTS Graduate Program Directors and WFU Graduate School Administration.

APPROVAL REQUIRED:	Majority Vote of the MMTS PhD Executive Committee
INITIAL ISSUE APPROVAL DATE:	09/17/2009
APPROVED BY:	MMTS PhD Executive Committee
REVISION APPROVAL DATE:	

STUDENT TRAVEL FUNDS

1. SCOPE

1.1. The MMTS PhD program strongly encourages and supports student participation and presentation at scientific meetings, allowing students to learn how to present their findings for public critical review, gain exposure in the scientific community, and enhance their professional development. Principal Investigators are responsible for supporting travel of the students they mentor. In addition, the MMTS PhD program will give limited funds for travel to encourage students to present their research results at regional or national meetings.

2. POLICY

2.1. The student MUST be giving an oral or poster presentation to qualify for MMTS travel support.

2.2. The student must fill out the [MMTS Travel Award Application](#) that must be approved by the MMTS Executive Committee.

2.3. Total MMTS travel support may not exceed \$750 per student during their tenure as a PhD graduate student.

APPROVAL REQUIRED:	Majority Vote of the MMTS PhD Executive Committee
INITIAL ISSUE APPROVAL DATE:	11/13/2003
APPROVED BY:	MMTS PhD Executive Committee
REVISION APPROVAL DATE:	08/16/2006, 10/03/2006, 05/21/2009, 08/20/2009, 04/19/12, 9/19/18, 02/20/19

MMTS GRADUATE STUDENT ATTENDANCE POLICY

1. SCOPE

1.1 To establish an attendance policy for MMTS students.

2. POLICY

2.1 Attendance for class, the MMTS seminars, and the laboratory is expected. Official excused absences include illness, illness or death of an immediate family member, religious holidays and jury or other civic duty. Excuse because of other reasons is at the discretion of the advisor.

2.2 Students in the semester they plan to graduate will register for thesis preparation. Follow the Graduate School registration guidelines. The students are still expected to attend the Translational Science Seminar Series, but will be exempt from oral presentations.

3.2 MMTS student Final Defense seminar attendance is highly encouraged for all MMTS students.

APPROVAL REQUIRED:	Majority Vote of the MMTS PhD Executive Committee
INITIAL ISSUE APPROVAL DATE:	01/14/2010
APPROVED BY:	MMTS PhD Program Executive Committee
REVISION APPROVAL DATE:	10/19/16

Statement of Philosophy of the Mentoring Relationship between Graduate Students and Advisors

Masters and doctoral graduate student training are comprised of both classroom instruction and an apprenticeship relationship with one or more faculty members. Each individual who pursues a graduate degree has ultimate responsibility for his/her education and professional development. Likewise, a faculty member who advises a student has a responsibility to foster the successful development of the student into a member of the profession. Additionally, Wake Forest University Graduate School of Arts and Sciences has responsibilities to both the student and the faculty advisor to maintain and promote an environment that supports quality training programs.

This document serves as a Statement of Philosophy about the mentoring relationship between graduate students and their faculty advisors, as well as the institutional responsibilities to facilitate that relationship. The purpose of this document is to function as a statement of guiding principles that can promote the student's successful completion of training, and guide their mentors' efforts. It does not supersede institutional rules and regulations.

Core Tenets of Graduate Training

Institutional Commitment

Institutions that train graduate students must be committed to establishing and maintaining high-quality training programs that ascribe to scientific, humanistic and ethical professional standards. WFU will work to ensure that students who complete its programs are well-trained and possess the foundational skills and values that will allow them to mature into independent professionals with integrity. WFU's commitment in this regard includes provision of oversight for length of training, maintenance of scholarly integrity, appropriate financial support, established procedures for addressing grievances, and various professional development-related opportunities. These opportunities can include effective and regular career guidance activities, reasonable access to institutional services, and other matters relevant to the education and professional development of graduate students. Additionally, WFU will strive to recognize and reward its graduate training faculty in support of their education of graduate students.

Program Commitment

The WFU Graduate School endeavors to establish and maintain robust training programs that provide students with the knowledge and career skills needed to function and succeed as independent professionals in their chosen fields. This commitment implies the maintenance of relevant course offerings and appropriate research opportunities. Each program of study in the Graduate School should have clearly defined procedures for assessment of students and closely monitor the progress of students during their courses of study.

Commitment to Outstanding Faculty Mentoring

Effective mentoring is crucial for graduate school trainees as they prepare for their careers. Faculty mentors should understand that such mentoring requires a commitment of substantial time and energy in order to ensure each student's professional and personal development. Furthermore, the mentor must recognize that the success of the relationship hinges on mutual trust and respect. Effective mentoring should include teaching the method of inquiry for the specialty, providing regular constructive feedback and constructive criticism to foster professional maturation, teaching the conventions of the field of study, and promoting students' careers by providing appropriate opportunities for independent work and recognition. Effective mentors should strive to facilitate the student's completion of his or her thesis/dissertation, to help guide the student through the requirements for completion of the degree, and to advise the student to be knowledgeable of and act in accord with all university policies and procedures.

Graduate student mentors should encourage students who seek to take a novel approach to achieving personal success. Good mentors should possess and exemplify high ethical standards, competent communication skills, recognize the contributions of students in all endeavors including publications and development of patentable devices or methods, and have a strong commitment to original research and scholarship. Good mentors should work to provide their students with an environment that is intellectually stimulating, emotionally supportive, safe and free of harassment. Lastly, where appropriate, the mentor should maintain or identify financial support that is appropriate for the program of study, and that will allow the student to complete the requirements for the degree.

Effective mentoring is a dynamic relationship between the faculty advisor and the graduate student. As such, in addition to the desired commitments of faculty members, students share an equal responsibility for their educational success as they prepare for their careers. First and foremost, students have the primary responsibility for the successful completion of their degree. Towards that end, students need to dedicate themselves to their scholarship and research, as advised by the faculty mentor. This includes pursuing opportunities to develop the necessary skills to succeed in the desired field of study and chosen profession, and when appropriate, taking advantage of the various resources that are made available for personal and professional development. The student must also recognize that the success of the mentoring relationship with their faculty advisor hinges on mutual trust and respect. Similar to their faculty advisor, students should possess and exemplify high ethical standards, strive to manifest competent communication skills, recognize contributions of fellow students, and have a strong commitment to original research and scholarship. Students should also work to provide themselves, fellow students, staff, and faculty with an environment that is intellectually stimulating, emotionally supportive, safe and free of harassment. The student is to be knowledgeable of and act in accord with all university policies and procedures. Lastly, where appropriate, the student should work with his or her mentor to identify financial support that is appropriate for the program of study, and that will allow the student to complete the requirements for the degree.

RESPONSIBILITIES

The faculty expects students to be mature and responsible members of the community, offers guidance in their freedom to learn, and subscribes to the statement of their rights.

Those rights are linked to the student's commitment to academic integrity and responsible behavior as a member of the University community.

Infractions of academic integrity include plagiarism, cheating on examinations, misrepresentation of the work of other scholars, and the falsification or fabrication of data in reporting one's own research. These infractions, as well as acts that disrupt the educational environment and any violations of local or federal law which occur on the university campus or during University sponsored activities, can be grounds for disciplinary action which may include dismissal from graduate school.

Policy Guidelines: In the event of a dismissal decision by the applicable program's policies and/or procedures:

A student who wishes to appeal a dismissal decision must make a formal request for appeal in writing (which may include electronic mail) to his/her program manager or designee within seven (7) business days of notification of the dismissal.

Students in the Graduate School of Arts and Sciences, Biomedical Programs, may appeal the dismissal in accordance with the procedures established by the program.

The applicable program manager (or designee) may place a student on an interim suspension before completion of regular conduct proceedings, when the student's continued presence within the School community would constitute a clear and immediate danger to the health or welfare of other members of the University community. The staff of the department of WFSM Counseling and Wellness Services would only be involved in this process if a student was found to be a threat to self or others during the student's evaluation by WFSM Counseling and Wellness Services.

- (a) When it is clear that the student has engaged in or threatens to engage in behavior that poses a significant risk of harm to the safety or security of themselves, others, or to property, or directly or substantially impedes the activities of members of the institution's community, including employees, other students, patients, or visitors.
- (b) In accordance with the applicable program's dismissal policy and/or standards of conduct.
- (c) If such a suspension is imposed, an appropriate hearing of the charges against the suspended person will be held as promptly as possible. Students in the Graduate School of Arts and Sciences, Biomedical Programs, may appeal the dismissal in accordance with the procedures established by the program.