



Integrated Biomedical Sciences

MS Student Handbook

DIVISION OF TRANSLATIONAL SCIENCE
2024-2025

The Division of Translational Science

At the Division of Translational Science (DTS) within Rush Medical College, we have created an environment that fosters innovation through an interdisciplinary approach to scientific discovery. Our students not only learn leading-edge scientific techniques but also, perhaps more importantly, critical thinking and analytical problem-solving skills that will serve them no matter their next steps after earning their MS or PhD. Students who select the DTS as their home for graduate education are committed to scientific advancement through research and will become the next generation thought leaders. Through rigorous training, customized curricula, and hands-on experience, students will become alumni who have strong connections and networks and are well-prepared to enter the scientific and clinical workforce where they will solve complex problems and lead organizations that will chart the future.

Mission

The mission of the Division of Translational Science is to advance the frontiers of biomedical science through innovative education, cutting-edge research, and interdisciplinary collaboration. By offering a PhD program in Integrated Biomedical Sciences, a master's program in Integrated Biomedical Sciences, a master's program in Biotechnology, and a master's program in Clinical Research, we strive to cultivate a dynamic and inclusive environment that nurtures scientific discovery, critical thinking, and professional development. Our goals are to 1) Provide rigorous and comprehensive graduate education that equips students with deep expertise in biomedical sciences, biotechnology, and clinical research. 2) Foster creativity and collaboration across disciplinary boundaries to solve complex biomedical challenges. 3) Promote strategic and impactful research that addresses critical health issues and advances medical science. 4) Ensure diversity and inclusivity within our academic community to enrich the educational experience and enhance scientific innovation. 5) Prepare graduates for successful careers in academia, industry, and healthcare by offering contemporary professional development and career planning resources. By fulfilling this mission, the Division of Translational Science aims to develop leaders who will drive scientific progress and improve human health globally.

Vision

The Division of Translational Science at RUSH University envisions becoming a global leader in biomedical education and research, recognized for our commitment to scientific excellence, interdisciplinary innovation, and transformative impact on human health. We aspire to create an environment where diverse perspectives and collaborative efforts converge to drive breakthroughs in biomedical sciences, biotechnology, and clinical research. Our graduates will emerge as pioneering leaders equipped to address the most pressing health challenges, advance medical knowledge, and improve the quality of life for communities worldwide. Through our dedication to fostering critical thinking, creativity, and professional growth, we aim to shape the future of healthcare and scientific discovery.

Table of Contents

The Division of Translational Science.....	i
Mission and Vision	
Overview of Academic Programs.....	1
Integrated Biomedical Sciences (MS).....	1
Curriculum	
Required Courses	
MS Program Progression	
Year 1: Classes, Advisor and Research Area Selection	
Year 1: Research Experience	
Generation of Thesis Proposal	
Year 2: Research Experience	
Required Credit Hours	
Thesis Research Committee	
Thesis Document, Presentation, and Approval	
Division of Translational Science Academic Policies	7
Examination Policy	
Pass/No Pass Grades	
Good Academic Standing	
Academic Difficulty	
Academic Probation	
Dismissal	
Student Academic Appeals Policy	
Full-time Enrollment	
Extension of Program	
Students-at-Large	
Readmission	
Academic Progression	
Academic Honesty and Student Conduct	
Use of Social Media and Artificial Intelligence	
Student Government	
Rush University Academic & Institutional Policies.....	11
Appendices.....	12
Integrated Biomedical Sciences Program Contacts	
Milestones and Mentor Agreement: MS Program	
Milestones and Mentor Agreement Form	
Forming a Thesis Advisory Committee	
First Advisory Committee Meeting Materials	
Materials for subsequent Advisory Committee Meetings	
Thesis Preparation	
Thesis Approval Form	
Guidelines for the MS Defense	

Overview of Academic Programs

Integrated Biomedical Sciences MS

The MS in Integrated Biomedical Sciences (IBS) is a research master's degree that will introduce students to the scientific approach and provide an opportunity for the student to pursue a bench-based directed research project. Graduates will be prepared to perform advanced biomedical research at colleges and universities, government agencies, hospitals, non-profit agencies, and industry. Our integrated program emphasizes an interdisciplinary approach to biomedical education and research. Students in the program will work with faculty to generate new knowledge in biomedicine using sophisticated research methods and approaches. Students can choose research experiences and advisors from among the many qualified faculty from Rush University Medical Center's academic and clinical departments. The Program is full-time and residential. Outside work is not permitted, since that interferes with the timely completion of the Program.

Integrated Biomedical Sciences MS: Curriculum

The core curriculum, which is common to all students, builds knowledge and skills in research theories and methodology, data analysis and statistics, laboratory applications and skills, and the molecular and cellular sciences basic to health and disease. These courses will provide systematic exposure to the contemporary process of scientific discovery and will serve as the basis for the remainder of the curriculum.

First Year

Fall Term

- GCC - 506 Biomedical Ethics Credit(s): 1
- GCC - 516 Cell and Molecular Biology Credit(s): 7
- BTN - 525 Experimental Models in Disease & Experimental Design Credit(s): 2
- GCC - 530 Laboratory Rotations I Credit(s): 2
- GCC - 546 Principles of Biostatistics I Credit(s): 2
- GCC - 548 Bioinformatics I Credit(s): 1

Spring Term

- GCC - 599 Thesis research Credit(s): 6
- and take 1 from the following introductory courses
- BMC - 500 Musculoskeletal Biology I Credit(s): 3
 - IMM - 507 Immunology I Credit(s): 3
 - GCC - 519 Neurobiology I Credit(s): 3
 - GCC - 611 Cancer biology I Credit(s): 3

Summer Term

- GCC-599 Thesis research Credit(s): 9

Second Year

Fall and Spring Terms

- GCC-599 Thesis research Credit(s): 2

Note: Students should register for two credits of Laboratory Rotation I. If a student cannot choose a thesis adviser based on the first laboratory rotation, a second flex-rotation must be approved by the Program Director and may be taken in the spring.

For graduation, students will need 3 credits of research area specific coursework. Research area specific courses should be taken during Spring term year 1.

Integrated Biomedical Sciences MS: Program Progression

Year 1: Classes, Advisor and Research Area Selection

The goal of coursework in the first year is to expose students to the biomedical sciences in a logical progression and to provide the students with tools for approaching their future research experience. This broad-based approach to health to disease is the core of the Integrated Biomedical Sciences Program.

During the first year, students will typically have one lab rotation. The laboratory rotation will expose students to a diverse research environment and allow them to assess how they fit into a particular laboratory or mentor situation. The rotation should be undertaken with a mentor who holds a faculty appointment in Rush Medical College. Students are expected to learn techniques and attend all scheduled experiments, lab meetings, mentor/student discussions, etc. Based on this rotation, students will submit the name of a potential advisor to the Program Director for approval. Specific research projects will be determined by the thesis advisor after advisor-student discussions. If a student cannot choose a thesis advisor based on the first laboratory rotation, a second flex-rotation must be approved by the Program Director and may be taken in the spring.

At the end of the first year during the Summer Term the student working with the advisor will generate a thesis proposal written in the form of a modified NIH F31 fellowship (1-page specific aim and up to 6-page research strategy). The advisor and the student will form a Thesis Advisory Committee that consists of a minimum of 3 faculty members (see details below). Then, the student submits this proposal to the Committee members at least 2 weeks before scheduled a meeting. At the meeting the student will discuss the research proposal, and the Chair of the Committee will be selected at this meeting. The Chair provides summary of all meetings to the Program Director, Committee members and the student.

Year 2: Research Experience

Year two will be determined by hands-on research experience. The student's assessment currently is related to the following learning outcomes:

- Demonstrate proficiency in acquisition of research skills, collection of data and data analysis, as well as interpretation of results related to research addressing an original

research question.

- Demonstrate proficiency of independent critical thinking and writing, as well as proposing, performing and effectively presenting their research.
- Demonstrate skills in working collaboratively with other scientists, physicians, and health care professionals, to provide and obtain feedback concerning the approach to research problems, data analysis, and implications of research.

The student is encouraged to create an individual development plan (IDP) to better define their areas of interests, skills, values and discuss this plan with program director, advisor, and thesis advisory committee members.

Journal Clubs

Journal clubs are a great way to foster scientific discussions outside of a formal classroom or lab settings. During the Thesis Research semesters, it is expected the students' participation in any lab and or Departmental academic activities like data or journal clubs. In addition, students are required to attend Departmental seminars. Thus, journal club/seminar is part of your training and it's not optional.

Minimal Credit Hours Required for the IBS MS Degree

The Program is designed to be completed in five consecutive terms and requires completion of at least 37 credits. These include 15 credits of core courses (including 1 laboratory rotation), 3 credits of research area specific coursework, and 20 credits of Thesis Research.

The core curriculum focuses on developing knowledge and skills in research theories and methodology, data analysis and statistics, laboratory applications and skills, and the molecular and cellular sciences basic to health and disease. Students will each have a research project, write a thesis and give a thesis presentation at project completion.

Thesis Research Committee

After the student selects a research advisor and begins to collect preliminary data, the student and advisor will select a Thesis Advisory Committee. This Committee will advise the student and evaluate their proposal and thesis documents.

The Thesis Advisory Committee will consist of the advisor and two additional Rush Medical College faculty members. Committee members should be familiar with either the research area or crucial technical aspects of the student's project. The composition of this Committee should be approved by the Program Director.

The Thesis Advisory Committee will strive for consensus in all its actions; however, a majority vote of the Committee's membership is sufficient for all activities except the final approval of the thesis, in which case only one member may disagree with the final decision. The first Committee meeting should take place within six months of its selection and approval. The Chair of this Committee, who cannot be the student's research advisor, will be chosen at the first committee meeting and will preside at all subsequent meetings and arrange for a timely completion of the thesis work. The Chair of the committee will oversee the procedural aspects of the committee meetings and student progression through the program and reports to the Program Director.

Thesis Document, Presentation, and Approval

The student is expected to write a thesis (format approved by the Center for Academic Excellence) and present the work in a public forum attended by the Thesis Advisory Committee, University faculty and students.

The thesis defense shall be a public, live oral presentation by the student on the main aspects of the research reported in the thesis, followed by questions, comments by the audience. This public defense is followed by a closed-door examination by the Thesis Advisory Committee. The Chair of this Committee shall act as the moderator of the final examination where each committee member is afforded the opportunity to ask questions of the students. After the examination is completed, the committee will then meet with the student in a closed session to address any additional questions and to deliberate on approval of the thesis.

All students will be required to submit the thesis to ProQuest to be eligible for graduation. Specific formatting guidelines are required as set forth by the Center for Academic Excellence. All students are encouraged to formulate their original research into a scientific journal article and submit the manuscript as a publication in a peer-reviewed journal.

Division of Translational Science Academic Policies

The Division of Translational Science follows University-wide policies and procedures and reviews program-specific regulations. However, the Division of Translational Science reserves the right to make substantive changes in its programs after a student has matriculated. Students will be informed in writing if any requirements are changed. Students re-entering the Program after an absence will be guided by policies and procedures in effect at the time of re-entry.

Examination Policy

The Division of Translational Science maintains rigorous standards for course and examination policies to ensure academic integrity and consistency across all programs. These policies are essential to uphold the quality and fairness of the educational experience for all students. Specifically, the Course Director is responsible for distributing a course syllabus to all enrolled students at the beginning of each course. The syllabus must adhere to the format specified by the University Curriculum Committee and include detailed information on course objectives, content, schedule, assignments, grading criteria, and examination policies. All course and examination policies outlined in the syllabus must align with DTS guidelines. Course Directors must ensure that their policies are consistent with the division's standards and provide a clear and comprehensive guide for students. All exams must be proctored to prevent academic dishonesty and ensure a fair testing environment. The Course Director must specify the procedures for proctored exams in the course syllabus, including the format, timing, and any special instructions. Proctors must be present during all exams to supervise students and enforce exam rules. The Course Director is responsible for arranging proctors and ensuring they are adequately trained to monitor exams effectively. Any breaches of examination policies or incidents of academic dishonesty must be reported immediately to the Course Director and handled according to DTS and university procedures. Students are expected to adhere to these policies, and any violations will be addressed according to the established disciplinary procedures.

Pass/No Pass Grades

Required courses are usually taken for letter grades (grades are A, B, C or F), although some may be offered as pass/no pass (P/N) option with approval from the program director. Research hours are graded using the P/N option.

Good Academic Standing

To remain in good academic standing, students must earn a B (3.0) or better in core and cognate courses, meet the requirements of their Program and maintain a cumulative 3.0 GPA. MS students must be in good academic standing to be admitted to the thesis exam and to graduate. Students who fail to remediate their deficiencies within one academic term or are placed on probationary status a third time, are subject to dismissal by the Division of Translational Science.

Academic Difficulty

The students have the responsibility to inform of their academic deficiencies and regain good academic standing resides within the Program Director. The Program Director also monitors the progress and promotion of students and gives approval to award students' degrees.

Academic Probation

Probationary conditions are defined in Article VII, Section 6 of the University Rules for

Governance and the program's Student Handbook.

- i. The Registrar's Office will notify the Program Director when a student's cumulative GPA falls below 3.0. The Program Director will then email the student with a confirmation receipt to inform them of their change in academic standing to probation, followed by an in-person meeting.
- ii. If a student fails to meet other program requirements, the Program Director will notify the Division Head. The Division Head will inform the students by email with confirmation of receipt of their change in academic standing. This correspondence will be included in the student's permanent file.

Dismissal

Students can be dismissed if they fail to meet program requirements or go on academic probation for a second time. As the Program Student Handbook and the University Catalog outline, students may be dismissed for academic misconduct or non-academic reasons. Procedures follow Article VII, Sections 6 and 7 of the University Rules for Governance as applies to the Division of Translational Science. Letters of Dismissal or Administrative Withdrawal come from the Division Head. These decisions are made in consultation with the Program Director and the Division of Translational Science Advisory Committee, and the student must receive adequate notice of such an impending decision. The Division of Translational Science Advisory Committee will recommend the Division Head for final action.

Student Appeals Policy

Any student of the DTS may appeal a final course grade, failure on a thesis examination, or failure of the thesis defense. A student may also appeal an unreasonable delay in their graduation from the University. A student may appeal a Dismissal or Administrative Withdrawal as stated in Article VII, Sections 6 and 7 of the University Rules for Governance. Course grades can be appealed directly through the Course Director. Comprehensive or candidacy exam failures, failure of a thesis/dissertation, and dismissal for other reasons can be appealed through the DTS Advisory Committee following the steps below:

- i. The student must initiate the appeal process within fourteen (14) calendar days of the event that precipitated the appeal. The student will submit a written statement to the DTS Advisory Committee requesting consideration of their case (convened in Step 2). The student must provide the following in the written statement:
 - Cause for probation or dismissal, e.g., failure of thesis/dissertation.
 - Action being requested.
 - Justification for the request.
 - An outline of the efforts and actions already taken to obtain consideration of the request;
 - Copies of this written statement must be sent to the Program Director and the thesis/dissertation committee Chairperson as appropriate.
- ii. The Chair of the DTS Advisory Committee will convene an appeals committee comprised of non-conflicted voting members of the DTS Advisory Committee. The appeals committee will include a student representative from a program different from the appealing student. Suppose a member of the DTS Advisory Committee is conflicted. In that case, that member may be replaced with a non-conflicted faculty who is not a member of the DTS Advisory Committee. Faculty considered conflicted include the student's Program Director and those evaluating the student's academic status. Conflicted faculty will not be on the appeals committee but can be invited to present to the committee. The appeals committee will meet within fourteen (14) days of receiving the student's written request to appeal. The appeals committee will submit a report with a recommendation to the Division Head within five working days of the committee's meeting.

iii. Within fourteen (14) days of receiving the appeals committee's recommendation, and upon discussion with the student and others as appropriate, the Division Head shall reach a final decision and notify each party. The conclusion reached by the Division Head is final. A designated appeals committee member will document the discussions and outcomes of all meetings in this appeal process. At any step in the process, the student may withdraw the appeal by written notification to the DTS Advisory Committee with a copy to the Division Head. In the event of a dismissal decision, a student may continue to enroll until the appeal process is completed or the student withdraws the appeal.

Full-time Enrollment

Full-time enrollment is required of all Integrated Biomedical Sciences students. Full-time students must register for at least nine credits each term or at least two credits when enrolled in thesis and dissertation research courses. At the time of graduation, the student must be enrolled in the program. Outside employment is not allowed during the years of the program, since it interferes with the successful completion of the student's studies.

Extension of Program

MS program is residential. Integrated Biomedical Sciences, MS students graduate within five semesters. If a student surpasses these time constraints, they must formally request an extension for graduation. This request must identify the reasons for the extension and provide a written plan with reasonable deadlines for completion. This document will be co-signed by the student's advisor and Program Director and submitted to the Division of Translational Science's Advisory Committee. The Advisory Committee will then vote on whether to accept the extension or not (passed by a simple majority). If the request is rejected, the student can submit an appeal as outlined in the division's Policies and Procedures document. Following the approval of the extension, the student is expected to fulfill all remaining requirements within the time limit defined in the extension permission. A subsequent extension request may be submitted by the student if necessary—the financial ramifications of the extension need to be determined before the request is approved.

Students-at-Large

Individuals with an accredited bachelor's degree or its equivalent may have the option of taking IBS courses as a non-degree student, prior to application to a degree program. The policy regarding the transfer of student-at-large credits can be found in the Academic Resources and Policies section of the DTS catalog.

Readmission

Any student who has voluntarily withdrawn from the University may apply for admission to the Program. A re-entering student must meet the conditions for re-enrollment, and all policies, requirements, including course sequence in effect at the time of re-entry. Application deadlines may vary by program.

Academic Progression

The Integrated Biomedical Science Programs are explicit and clear about regulations concerning academic policies and procedures surrounding preliminary, candidacy and final examinations when they are required. Students must become familiar with the regulations and expectations of their chosen program. These regulations and expectations are included in this handbook within the sections devoted to each program. The student is responsible for understanding the regulations, and monitoring changes that may occur during their tenure in the program.

Academic Honesty and Student Conduct

The Division of Translational Science and its programs follow the University policies on academic honesty and the University statement on student conduct. Each student is expected to always conduct themselves in a professional manner — a manner that conforms to the ethics of the profession and which instills confidence in one's abilities as a working scientist. Irresponsible, unprofessional or unethical behavior, as determined by Rush University honor code may result in dismissal from the program. The college and its programs will not condone cheating in any form. Allegations of cheating will be reviewed by the program director following internal DTS policies. If merited, the report will be forwarded to the Dean of Rush Medical College.

Use of Social Media and Artificial Intelligence

Students are expected to adhere to Policy Numbers OP-0362 and UAC-0039 requirements regarding the use of social media and artificial intelligence, respectively, in a way that is consistent with the parameters of responsible use as specified in the Policy.

Student Government

The Student Council is the sanctioned student governmental body in the DTS. Policies and procedures relevant to the Student Council are specified in their bylaws.

Rush University: Academic & Institutional Policies

Please use the link below to review the University Catalog 2024 – 2025, which serves as a great resource for information about the campus, student programs, academic policies and more.

<http://catalog.rush.edu/content.php?catoid=17&navoid=1522#academic-resources-and-policies>

Appendices

- Integrated Biomedical Sciences Program Contacts
- Milestones and Mentor Agreement: MS Program
- Milestones and Mentor Agreement Form
- Forming a Thesis Advisory Committee
- First Advisory Committee Meeting Materials
- Materials for subsequent Advisory Committee Meetings
- Thesis Preparation
- Thesis Approval Form
- Guidelines for the Defense

Appendix 1

Integrated Biomedical Sciences Program Contacts

Josefina Ramos-Franco, MD, PhD
IBS Program Director

josefina_ramos-franco@rush.edu

Kelly D. Boles, MBA, MS
Manager of Research & Academic Affairs

kelly_boles@rush.edu

Tom Gergits, MBA
Admissions Manager

thomas_gergits@rush.edu

Gabriella Cs-Szabo, PhD
Vice Head, Division of Translational Science

gabriella_cs-szabo@rush.edu

Lena Al-Harthy, PhD
Head of the Division of Translational Science

lena_al-harthy@rush.edu

Appendix 2

Milestones and Mentor Agreement: IBS MS Program

This form is provided for the purpose of informing students about the academic milestones that they will be expected to reach in order to earn their Master's degree, and when they are expected to complete these milestones in order to make satisfactory progress through the program. Students who are not making satisfactory progress will be placed on academic probation and may be dismissed from the program. The IBS Program requires that this form is reviewed and signed by both the research advisor and student.

Academic Advising

Upon entering the to Master's program, students are encouraged to seek advice from the IBS Program Director. Once a student selects his or her thesis advisor, this faculty member will take over the advising role.

Academic advising includes the following elements that are designed to ensure that students remain in good academic standing and make satisfactory progress through the program. Students and their advisors are mutually responsible for working together to ensure that the student accomplishes the following:

- Assemble advisory committee with guidance from the advisor.
- Meet with the advisor and advisory committee every 6 months or more often.
- Review and understand all of the degree requirements and progress consistently with the expectations of the program, reaching milestones according to the timeline provided on this form; work with the Academic Affairs team, the student's Advisory Committee or Program Director if modifications are necessary.
 - Meet regularly with the advisor to clarify the timetable for completing any remaining course requirements and other requirements.
 - Understand the requirements for the writing and successful defense of the thesis.
 - Benefit from experiences and information provided by the advisor to optimize the student's career opportunities and success.

Degree-Completion Checklist for Students

- Maintain active student status. Full-time active student status is defined as 9 credits per term, exception is Thesis research which is 2 credits for full-time enrollment.
- Successfully complete all Milestones listed below.

Requirements for Students in the MS Program Form

Milestone	Expected Time of Achievement
YEAR 1	
Complete laboratory rotation	End 1 st year, Fall-term
Identify a research advisor submit name for approval	End of 1 st year, Fall-term
Sign <u>Milestone and Mentor Agreement form</u>	Submit no more than 30 days after advisor approval
Complete course requirements	1 st year, Fall & Spring-term
Identify Advisory Committee & submit names, affiliations & areas of expertise for approval	Submit at the beginning Summer-term of 1 st year
Write Thesis Proposal (modified F31 format)	Submit to the Advisory Committee at least 2 weeks before the first meeting during the Summer term of the 1 st year
Hold first Advisory Committee meeting for Thesis proposal	End of June in Summer-term of 1 st year
YEAR 2	
Hold Advisory Committee meetings	At least every 6 months
Notify the Registrar's Office of impending completion of the degree	Beginning of the Spring-term of 2 nd year
Write a thesis (format approved by the Center for Academic Excellence)	Start of the Spring term of 2 nd year
Defend Thesis (Public & Private)	1 month prior to graduation in Spring-term of 2 nd year
Fill out the <u>thesis approval form</u> to be send for signatures	After successfully defending the thesis
Submit the signed thesis approval form with the thesis final version to ProQuest	Dates given at the beginning of term
Complete all degree requirements	Within 5 semesters of admission

We have read this form and discussed the milestones. The student and mentor understand that completion of these academic milestones according to the stated timeline is necessary in order to successfully complete the Rush Division of Translational Science IBS MS Degree.

Student

Advisor

Student's Signature

Advisor's Signature

Date

Date

The student is required to send the signed form to the Program Director & the Manager of Research & Academic Affairs by email.

Appendix 3

Forming a Thesis Advisory Committee

Requirements

The proposed composition of the Thesis Advisory Committee must be submitted to Program Director for review and approval. Students will be notified no later than one (1) month after a decision is made. Committees are comprised of three (3) members:

MS Committees:

- Two (2) who must be members of the Rush Medical College (including the advisor)
- One (1) who maybe external to Rush Medical College or RUSH University with an expertise in the student's research area

All voting members of the Thesis Committee must be faculty members at an academic institution. An individual who is not a faculty member but could provide expertise relevant to the student's project may serve as an extra, but only as a non-voting member of the committee.

The Chair is appointed in the first meeting after the committee is approved (simple majority members are required to approve Chair).

- Note: The Chair cannot be the advisor.

Members of the student committees must hold at least master's degree.

Guidelines for a Strong Thesis Advisory Committee

- In addition to the above requirements, the Program Director will weigh other factors to determine if the committee composition is appropriate for the student. These include:
 - Representation of faculty with expertise in the student's study area(s) of research.
 - Breadth of the committee as indicated by the inclusion of faculty whose primary expertise lies outside the student's major area of research.
 - Breadth of the committee as indicated by inclusion of Rush University Medical College faculty from outside the student's program.
 - Familiarity of the included faculty with the requirements and policies of the Division of the Translational Science and the student's program.
 - Availability of the faculty for regular committee meetings at least once every six months.

Chair of Thesis Advisory Committee Responsibilities

Overview: The Chair of the Thesis Advisory Committee plays a pivotal role in bridging the Division of Translational Science (DTS) through the Program Director and the student advisory committee. This position requires effective leadership, strong organizational skills, and a commitment to supporting the academic and research progress of MS students.

Key Responsibilities:

Committee Leadership: Lead and facilitate the thesis advisory committee meetings every six months, ensure productive discussions and decision-making processes during meetings, guide the committee in providing constructive feedback to the student.

Communication and Coordination: Serve as the primary liaison between the DTS Program Director, the student advisory committee, and the student, maintain clear and consistent communication with all stakeholders, ensure that the committee's recommendations and decisions are effectively communicated to the Program Director and other relevant parties.

Post-Meeting Reporting: Prepare and submit a detailed post-meeting report within two weeks following each committee meeting. The report should address the strengths and weaknesses of the student's project and performance, any milestones completed, and future milestones to be achieved. Distribute the report to the Program Director, Manager of Research & Academic Affairs (Kelly Boles), the student, and committee members.

Documentation and Compliance: Maintain accurate and up-to-date records of all committee activities and decisions and communicate them to DTS.

Thesis Advisory Committee Meeting

The purpose of the committee meeting is to give and receive feedback on the student's experimental approaches, interpretations, and goals.

Often students delay scheduling a meeting because they feel that they do not have enough new data. Such delays are counterproductive to a timely graduation. The committee can be most helpful when things are going slowly or are not working according to plan.

Regular meetings with the Committee will keep its members abreast of a student's goals and gives the Committee an opportunity to suggest new approaches, experiments, etc. that could move the work forward. Delaying committee meetings slows down progress. The first advisory meeting should take place within the Summer-term of the 1st year. This committee then will oversee the student's progress for the remainder of the graduate education.

How to Schedule the Thesis Advisory Committee Meetings

The best way to contact the committee members and set up a meeting is through support personnel of the student's mentor or by sending an email or Doodle Poll directly to committee members. Contact the Manager of Research & Academic Affairs in the Division of Translational Science to reserve a room for the meeting. Most Advisory Committee meetings take one to two hours.

PRO TIP:

Start working on scheduling a meeting two months in advance. It can be a challenge to identify a time when all committee members are available. However, it is possible to hold the meeting with one member absent, provided that the advisor approves and the committee member who will be absent agrees to miss the meeting. After the meeting, it is the responsibility of the student to update the absent member. All committee members are expected to be present at the thesis defense.

Reserving a Meeting Room or Scheduling Virtual Meeting

Remote meetings can be scheduled via a virtual platform. The Manager of Research & Academic Affairs in the Division of Translational Science can assist in setting up virtual meetings.

After the room or virtual meeting has been scheduled, a calendar invitation should be sent to the committee members with the date, time, and room number (or meeting code). It may be helpful to send a reminder to email prior to the scheduled committee meeting date.

Appendix 4

1st Advisory Committee Meeting Materials

I. A written summary of the student's proposed research plan following a modified version of the NIH F31 fellowship format.

- This should include one-page specific aim/s and up to six-page research strategy.

II. It is not necessary to have too much data to present at the first committee meeting, it is expected that your presentation on your background, courses taken at Rush, the background of the project, data gathered by that point, research plans for the next six months, and the project's long-term goals. The emphasis should be placed on the plan for the next six months.

III. The presentation slides.

- Advice that is generally applicable to all oral presentations is to limit the number of slides. This allows the audience to identify easily to a slide about which they plan to inquire during a questioning session at the end of the presentation. The student should review the presentation and slides with his or her advisor prior to the committee meeting.

IV. Prepare a PowerPoint (or similar) presentation that:

- Introduces the committee to the project. Details are not as important as context—why is this an interesting area? What are the key questions? How will the project address one or more of those questions? Do not assume that the committee members know all of this already.
- The student should explain the progress to date. Avoid the use of jargon peculiar only to the subfield. For each experiment, tell the committee why it was done, what was done, and what was observed, and what it means.
- Provides a plan for the work over the next six months. If a key experiment demonstrating the feasibility of the approach has not been completed, the committee may ask to meet with the student earlier to discuss progress.

Remember, the committee is an experienced, intelligent group of researchers who are there to help the student produce the best research!

Materials for Subsequent Advisory Committee Meetings

The following documents are to be submitted for the subsequent meetings.

I. Pre-Meeting – Prepared by the student a proposal follow-up report where if there were major action items and important considerations requested at the previous committee meetings, this should be address here, follow by a simple description of the accomplished goals, and the goals for the next six months. Solicit input on this progress report from your research advisor before it is sent out to the committee. The Committee should receive the statement at least three days before the meeting.

II. Post-Meeting – Prepared by the Committee's Chair who writes a one-page word document about the meeting and any action items or specific follow-up needed by the student to be used as a guide for the next meeting. The document is sent to all committee members including the advisor, the student, and the Program Director.

How to get the most out of your Committee.

Students should make the decision to take charge of the committee meeting. This may be a major shift in mindset, if the student is used to following everything that supervisors have told them. It is true that the committee may have more experience than the student, but this is the student's research work, education, and it affects their career. The student is not at the mercy of the thesis advisory committee. The Division of Translational Science gives a student the opportunity to learn how to become an independent researcher, and they have the right to speak up for themselves if they disagree with their supervisor or committee members.

Draft an agenda and a desired outcome for the meeting.

It is not enough to prepare a presentation about the progress, and “hope” that the committee will approve it. Professors are busy, and it is a rare occasion when all committee members can come together. The best way to make use of this time is to be very clear about the agenda for the meeting.

Before the meeting: make a list of all the topics to be covered and be clear where guidance from the committee is needed.

What is needed to move the thesis forward? What are the requirements to finish the thesis?

The more clarity a student gets from their committee about their expectations, the easier it will be to make progress. Professors appreciate that a student took the initiative to go through the details of their work to get feedback.

Share the most important results with the committee members before the meeting.

There should not be any surprises during the committee meeting. If a student presents unexpected results or the committee members disagree with each other on major topics, the meeting can turn chaotic. Ideally, all committee members should be aware of what to expect, the purpose of the meeting is to make sure everyone is on the same page, and to discuss details of the research and upcoming milestones. The best way to ensure that the meeting goes smoothly is to meet individually with each committee member to discuss the results. Another option would be to share the results over email and ask for feedback. If there are any disagreements, a student should attempt to resolve them before the meeting by speaking with their advisor to ensure that the meeting goes smoothly.

During the meeting: Clarify the agenda including how much time will be spent on each part.

Send out the agenda to the committee members beforehand, but also remind them of the topics to be covered before beginning the presentation.

If several topics need to be discussed or multiple decisions made, the student indicate approximately how much time to spend on each topic.

This will give committee the opportunity to ask questions or address any additional topics they would like to cover.

Respectfully guide committee members back to the agenda if they go off on tangents.

Some professors, especially if they are passionate about their research, may go off topic. They might talk about their own research or previous students.

If the topic they bring up is not relevant to the agenda, acknowledge their opinion respectfully (use a phrase such as “Thank you for sharing that, I will keep it mind”) and then gently guide them back to them to the agenda.

A student may feel intimidated if they need to interrupt a conversation between two professors but should remember this meeting is to discuss their project and be successful in the Program.

If committee members realize that they need to discuss something unrelated to the thesis, rest assured that they will find the time to talk about it after the committee meeting.

A student’s job is to make sure they stay on the agenda and get their questions answered, and the Committee gets the information they need to help move the project forward.

Wrap up the meeting with an action plan.

End each meeting with a summary of what was discussed, agreements that were reached, and an action plan for next steps. The student’s action plan needs to have “actionable” items, specifically what milestones they will work towards after the meeting, and approximate timelines. If it’s not the final committee meeting, also set an approximate date for the next meeting.

Committee Meeting Reports

There is no formal paperwork involved. When the examination is complete and the student has the instructions from the committee, the Chair writes a one-page word document about the meeting and any action items or specific follow-up needed by the student to be used as a guide for the next meeting. This document is to be send to all committee members including the advisor, the student, and the Program Director.

Subsequent Advisory Committee Meetings

The purpose of meeting with the advisory committee at least every six months is to make sure that the student is making steady progress toward milestones and the completion of the thesis. These meetings are important and are required. Missing this important milestone can result in academic probation. The meetings are for THE STUDENT – not the advisor. It is the student’s responsibility to keep them on track.

For each committee meeting, the student should prepare a ~45-minute talk summarizing the background of the project, the research goals and the progress toward those goals. The student should review the presentation with his or her advisor prior to the meeting. The content of the talk should largely follow the written research summary that was submitted to the committee in the pre- meeting update. It is helpful for the student to remind the committee members of any new publications, courses completed, etc.

Review the specific experiments that have been done since the last meeting and end with the goals for the next six months. Focus on the major goals for the thesis. Advisors should be consulted on making the slides. All data should be clearly labeled. Diagrams illustrating the experiments are often helpful. This will be good practice for preparing the elements of publications and of the thesis or dissertation.

The committee is likely to ask additional questions to initiate a discussion of the quality of the data, the student's interpretation of them, alternative approaches to the problem. Take notes of experiments, alternatives, criticisms, etc. that are offered by the committee during this time, as this discussion is intended to help the student. The committee meeting will likely last 1-1.5 hrs.

At the conclusion of each meeting, the student should have a clear understanding of the committee's recommendations for future experiments, data analyses, etc. Do not leave a committee meeting without obtaining such a clear view. Do not hesitate to ask for clarification of the committee's recommendation(s) and make sure, with the advisor's assistance, that there is a consensus among the committee members regarding such recommendations.

For each meeting, the student must send his or her pre-meeting Student Progress Update to the committee members at least three days before the meeting.

Remember, these goals are not contracts; they are simply to help the student plan the next six months. The goals need not all be met before scheduling the next committee meeting. The committee expects that unforeseen problems or changes in the direction of the student's research will occur. An important function of the committee is to help the student to rise to meet these challenges.

Appendix 5

Instructions for Preparation of the Thesis

BASIC REQUIREMENTS

The three most important requirements for preparation of the thesis are:

1. The thesis must be an original document written by the student.
2. The thesis must be clearly written, grammatically correct and free of typographical errors.
3. Students may not simply bind their publications together in lieu of writing a thesis, but material from their previous publications or the work of others may be included if it meets the requirements below.

Students are encouraged to contact the Center for Academic Excellence (CAE) well in advance of submitting the thesis if they have questions. Students should review the CAE Rush Formatting Manual here <https://www.rushu.rush.edu/rush-experience/student-services/center-academic-excellence/cae-manuals-handouts-and-tools>

Inclusion of material previously published by the student

The spirit of the thesis is that it is the student's own work, which can be complex in this age of team science. Work taken from publications authored or co-authored by the student may be included in the thesis, but the following rules apply:

- Keep in mind that the student's Advisor will be asked to confirm that the student contributed substantially to any text or figures included in the thesis.
- If the thesis includes text or a figure which is part of the student's publication, but the work was done by someone other than the student, permission must be obtained from the individual and explicitly noted (e.g., "Used with permission...") in the text or figure legend, as appropriate, and the role played by the other individual must also be clearly acknowledged in the text/figure legend.
- The *Introduction* (first chapter) and *Discussion* (last chapter) of the thesis must be the student's own work and **not taken verbatim** from any publication.
- *Materials and Methods* and *Results* sections may include text and figures taken verbatim from the student's previously published work. The complete reference and permission of the copyright holder to use the material must be cited.
- Students may use their publication(s) to form the basis of a chapter(s) -- the following rules apply:
 - Note at the start of the chapter "This chapter is based upon (insert full citation)" and cite the permission of the copyright holder (usually the publisher of the journal) using the language provided by the journal.
 - The text must be modified to the same style as the rest of the thesis – there should be good continuity (i.e., flow) between all chapters of the thesis and between each section of a chapter.
 - It is permissible to include text from the publication's *Introduction* and *Discussion* in the chapter (note that this is different from the *Introduction* and *Discussion* of the thesis, which must be the student's own work and not taken verbatim from any publication, as mentioned above).
 - The student is responsible for obtaining any necessary permission that is required to use previously published work. Journals' websites will likely provide specific guidance for obtaining such permission. Please note that this process may take several weeks.

Inclusion of the published work of others

- Textual material taken from publications *not* authored by the student may be included if it is indented 1/2 inch from the left margin, single-spaced, and properly referenced at the end of the text and in the bibliography.
- Any reproduced text should generally be limited and have a clear purpose other than substituting for text that would normally be expected to be written by the author of an original thesis.
- Figures from the work of others also may be included if clearly indicated and referenced in the figure legend.
- The student is responsible for obtaining any necessary permission to use figures or text from the copyright owner and submitting it along with the thesis.

THESIS APPROVAL FORM

The undersigned have examined the thesis entitled (*Thesis title here in italics*) by (Your name here), a candidate for the degree of (degree here), and hereby certify that, in their judgement, the thesis is worthy of acceptance.

XXXXXX
Committee Member
Rank
Dept
Rush University

XXXXXXX
Committee Member
Rank
Dept
Rush University

XXXXXXXX
Committee Member
Rank
Dept
Rush University/Other

APPROVED:

Dr. Cynthia Brincat
Dean, Rush Medical College
Rush University

Appendix 6

Guidelines for the MS Defense

- The purpose of the defense is to provide a consistent and complete evaluation of the thesis and the student's understanding of the research, as well as the student's ability to report information to the scientific community in a well-organized and interesting form.
- The defense consists of two parts: a public and closed presentation on campus. In the public defense, the student will make a 45 to 60-minute oral presentation, including a detailed description of the background, rationale, materials and methods, results, and conclusions appropriate to the research. This will be presented to the audience live, not pre-recorded. Following the presentation, the student will respond to questions from the audience.
- Immediately thereafter, the Advisory Committee will examine the student on the thesis in a closed meeting. The student's Advisory Committee Chair will serve as moderator of the closed meeting. The student will be expected to respond to questions from those attending on any aspect of the written thesis or the material presented at the public presentation.
- The Committee may conclude that the student has passed, or it may require additional research, modifications to the thesis, and/or another defense.
- Following a successful defense or successful completion of the recommendations of the Committee. The Committee Chair, Research Advisor or student will submit the *Results of the Defense* and a copy of the final thesis to the Program Director within 7 days of the defense or completed edits. The student and all members of the student's committee must be copied on any communication.
- Fill out the Thesis approval form to be send for signatures. The Thesis approval form will be route to everyone listed via DocuSign by the Manager of Research & Academic Affairs (Kelly Boles). After the student has been notified that the approval form has been signed by all parties, the student must upload the completed form and approved final thesis to ProQuest. The center of academic excellence is in charge of checking format and also checking for plagiarism and for scientific misconduct through image duplications.
- The next form is the Degree Approval Form and that is given to the Program Manager by the Registrar's Office. This form will also send out via DocuSign for degree conferral.