

**Baylor College of Medicine
Graduate School of Biomedical Sciences**

Qualifying Exam Procedures and Rules

Effective August 2023



GRADUATE
SCHOOL
OF BIOMEDICAL SCIENCES

A: INTRODUCTION

The process of preparing for a Qualifying Exam provides students with an opportunity to synthesize their general and discipline-specific knowledge, and to apply creative thinking to generate an original research proposal.

1. The purpose of the Qualifying Exam taken by BCM graduate students is:
 - a. To examine the student's general and discipline-specific knowledge.
 - b. To test the student's ability to identify, articulate, orally present and defend an original and creative research project.
 - c. To examine the student's ability to formulate hypotheses based on an understanding of the published literature and to test those hypotheses with a clear and feasible research plan.
 - d. To test the student's ability to write a fellowship-style proposal on the topic in the field of their thesis research.
2. The Qualifying Exam should prepare the student to submit their own fellowship application, but does not require that they do so. Nonetheless, students are strongly encouraged to use their proposal and feedback received during their Qualifying Exam as a foundation for preparing and submitting a competitive fellowship application.
3. Passing the Qualifying Exam is a requirement for admission to Candidacy for the Ph.D.
4. Passing the Qualifying Exam is not a requirement for a terminal MS degree. Students can be considered for a MS degree if they do not pass the Qualifying Exam, provided they satisfy all requirements for that degree (e.g. course work and generation of a research product).

B: TIMING OF THE QUALIFYING EXAM

1. The Qualifying Exam should be scheduled in Terms 1-5 of the student's second year, taking place before the end of the second year. Exceptions must be approved by the GSBS Dean.
2. With the permission of the student's program, the Qualifying Exam may serve as the student's Year 2 Spring Committee meeting. If the Qualifying Exam does not serve as the Year 2 Spring Thesis Advisory Committee (TAC) meeting, the student with the input of their program, may schedule this TAC meeting prior to or after their Qualifying Exam.
3. Each graduate program will offer a class to prepare their students to take their Qualifying Exam. The precise timing, format and content of the class is left to each graduate program, but should include discussion sessions where each student receives feedback from faculty on the formulation of the Specific Aims for their Qualifying Exam proposal. (See [Appendix A](#) for courses)
4. Second year students will meet with their graduate program leadership and/or faculty members in charge of their program's Qualifying Exams early in year 2, prior to the students starting to formulate their Specific Aims. The purpose of this meeting is to make students aware of the rules and guidelines for the Qualifying Exam, and to review the criteria that will be used to assess student performance on the exam.

C: FORMAT OF THE QUALIFYING EXAM

1. The first component of the Qualifying Exam is a written proposal structured as the Specific Aims and Research Plan of an NIH F31 NRSA fellowship: one page of Specific Aims and a six-page research plan inclusive of figures. References, biosketches and certifications are not included in the page limits. The proposal should follow the NIH requirements for formatting.

The written proposal should also include the student's NIH-style biosketch and a statement by the student indicating their contributions to the design and preliminary data of the proposal ([Appendix B](#)). The student should also indicate the names and contribution of individuals assisting the student with

the preparation of the proposal. A Qualifying Exam Certification must accompany the submission (see Section D below).

2. The second component of the Qualifying Exam will be a 25-30 minute oral presentation by the student.
3. The third component of the Qualifying Exam will be a 60-90 minute period of oral questions from the exam committee to test the student's general scientific knowledge and discipline-specific knowledge pertaining to their proposal.

D: PREPARATION FOR THE QUALIFYING EXAM

A student's mentor is expected to assist the student in preparing for their Qualifying Exam, respecting the rules below. Each proposal submission must be accompanied by a Qualifying Exam Certification ([Appendix C](#), part I) attesting that the student and mentor abided by the following guidelines. In the event that the student wishes to submit a fellowship application prior to or during the time their program's qualifying exam is typically held, the Section D-Alternate procedure must be followed (see below).

1. The Specific Aims of a Qualifying Exam proposal must be initially formulated by the student. The mentor and other faculty, students and postdocs may discuss the proposal's aims and experimental design with the student. However, the student must be the sole author of the proposal. The student may discuss the written document and receive feedback, but the editing, correction and/or revision of the proposal must be done by the student alone.
2. The student may not submit a Qualifying Exam proposal that has already been submitted as an external fellowship or grant application by the student or anyone else.
3. Students are encouraged, but not required, to include preliminary data in their proposal. They may include preliminary data from other members of their lab, but this must be acknowledged in both the written proposal (via the Contributions Statement; [Appendix B](#)) and the oral presentation.
4. The members of the Examination Committee play no part in the preparation or practicing of the student's oral presentation. The student must be the sole author of their presentation slides. They may practice their planned presentation and receive feedback from other students, postdocs, the mentor or other faculty. However, the editing, correction and/or revision of the slides must be done by the student alone.

D-ALTERNATE: FELLOWSHIP SUBMISSION PRIOR TO or DURING THE QUALIFYING EXAMINATION

In instances in which a fellowship application is due before the typical time a program's QEs are held, a student may wish to submit a fellowship application prior to or during taking their QE. As a first consideration, the student and mentor should work with the program director and/or QE chair to attempt to schedule the QE exam before the fellowship application submission deadline. This most closely adheres to the intent of the QE procedures and provides the student with an opportunity to receive feedback on their proposal from a faculty committee before submitting it to a funding agency. Students should discuss any need for QE timetable adjustments with their Programs early in Year 2, well before fellowship and QE submission deadlines. If it is not possible to conduct the QE prior to a fellowship application, the following provisions apply:

1. It is expected that a student's mentor will assist the student in preparing their fellowship application, and accordingly, any time a fellowship application is submitted prior to the QE, the student must petition the GSBS Dean for an exception to Section D of the QE Procedures and Rules. The petition should outline the reason it is not possible to conduct the QE prior to submitting a fellowship application, and outline how the student, mentor and program have planned for the QE written proposal to reflect the work of the student consistent with the Section D.1 guideline. For example:
 - a. The student completes the written proposal according to the Section D.1 guideline, and submits the "student only proposal" to their Program prior to beginning work on their fellowship with their mentor. The "student only proposal" is held until the student is ready to take their QE, and at that time it will be submitted to the QE committee as the written part of the examination.

- b. The Contributions Statement (Appendix B) must carefully document contributions of mentors and others to the QE written proposal, with reference to the timing of the fellowship application and contributions of the mentors and others to the fellowship application.
2. Students are encouraged, but not required, to include preliminary data in their proposal. They may include preliminary data from other members of their lab, but this must be acknowledged in both the written proposal (via the Contributions Statement; [Appendix B](#)) and the oral presentation.
3. The members of the Examination Committee play no part in the preparation or practicing of the student's oral presentation. The student must be the sole author of their presentation slides. They may practice their planned presentation and receive feedback from other students, postdocs, the mentor or other faculty. However, the editing, correction and/or revision of the slides must be done by the student alone.
4. In any case in which a fellowship has been submitted prior to or during the submission of the QE written portion, a modified Qualifying Exam Certification (Appendix C) must be submitted. The modified certification must outline deviations from the standard certification statement, and a copy of the petition to submit a fellowship prior to the QE and the Dean's approval must be attached.
5. In any case in which a fellowship has been submitted prior to or during the submission of the QE written portion, the QE Chair and Committee will be notified that the written proposal was edited/revised with the help of the mentor and/or others prior to the oral examination. The Chair ensures that this is taken into consideration during the oral examination with regards to increased rigor in questioning, and the relative weight of the written *versus* oral examination in determination of the overall QE result.

E: GUIDANCE REGARDING THE USE OF ARTIFICIAL INTELLIGENCE SOFTWARE (A.I.)

- Students are welcome to use AI-based natural language processing chatbots (i.e. ChatGPT and others), machine learning or similar algorithmic tools as technologies to further their research goals and scholarly activities (i.e. improving language and readability).
- A major goal of Qualifying Exams, and MS and PhD defenses is to examine students' independent thinking, creativity, and originality. Accordingly, the use of AI tools to generate scholarly products (i.e. figures, tables, data summaries, text) for Qualifying Exams, MS Thesis and PhD dissertations should be disclosed within Methods sections or other appropriate location(s), citing the model or tool used.
- Students should be aware that presenting the ideas or copying the text generated by AI-based tools as their own, without proper acknowledgment, will be considered **academic and/or scientific misconduct**. In whatever form, if plagiarism or other misconduct is detected, the QE or the thesis defense committee can award a result of **FAIL**.
- Students are responsible for their use of AI technology, and should exercise appropriate oversight (i.e. fact checking for accuracy) as AI can generate output that appears to be authoritative (i.e. references to published literature) that can be incorrect, incomplete or biased.
- It should also be noted that AI tools may not be designated as authors on scholarly works (i.e. abstracts, status reports, manuscripts/publications). Students, as authors, are accountable for the quality, integrity, and originality of their scholarly work and are fully responsible for the contents.
- When preparing work for publication, students are strongly encouraged to check AI use policies at journals where they plan to submit their work (i.e., consult the Instructions to Authors).

F: THE QUALIFYING EXAM COMMITTEE

1. The Examination Committee shall consist of a Qualifying Examination Chair, two members of the TAC and two members of the program's faculty. If the TAC has not been appointed prior to the examination, the QE Chair(s) shall select two program members with expertise in the field of the proposal in place of the TAC members. All members of the Qualifying Examination Committee are voting members. The student's

Major Advisor must attend the examination, but serves solely as a silent observer.

2. The Program Executive Committee of each graduate program selects up to 4 individuals to serve as the chairs of all QEs conducted by the program in a given year. The Chairs can be Reporting Committee members or other senior members of the program's faculty. The Qualifying Examination Chairs shall recommend the examination date and select the 4 remaining members of the Examination Committee. Once an exam date and Examination Committee has been determined, the student must submit a [Qualifying Examination Date](#) form to GSBS.
3. The Qualifying Examination Chairs for each graduate program shall meet with program leadership or a designated exam coordinator each year, prior to the first exam for that graduate program. The purpose of the meeting is to remind all Chairs of the exam format and guidelines, to discuss the criteria that will be used to assess student performance on the examination, and to review the criteria for grading the exam (Pass / Incomplete / Fail) to ensure consistency across all Qualifying Exams.

G: CONDUCT OF THE QUALIFYING EXAM

1. The Qualifying Exam proposal must be submitted to the Chair of the Examination Committee two weeks before the scheduled exam. Proposals submitted on or before the due date will be reviewed by the Chair, and those that are complete and meet format requirements will be certified by the Chair (see [Appendix C](#), part II) to proceed to the oral exam.

Failure to submit the proposal by the due date will result in a grade of Fail for the Qualifying Exam, unless the Chair grants an extension of the due date based on a justified request submitted by the student prior to the deadline. Proposal submissions that are grossly incomplete also will result in a grade of Fail for the Qualifying Exam. Proposals with minor omissions or formatting deficiencies will have a one-time only period of 24 hr to make corrections before resubmitting the proposal to the Chair.

At that time, the Chair will determine whether the proposal can be certified to proceed to the oral examination.

2. Prior to the exam, each member of the Examination Committee, including the Chair will write a critique of the written proposal using the GSBS evaluation categories for the written proposal:
 - a. Ability to critically evaluate research literature
 - b. Rationale and Research Question
 - c. Imagination and Originality of Thought
 - d. Research Design and Methods
 - e. Rigor & Reproducibility
 - f. Writing Skills

Each member will score each category from 1 - 4 (1=unacceptable, 2=acceptable, 3= very good, 4=outstanding). The written critiques and scores must be sent to the Examination Chair no later than the day before the exam.

3. The exam cannot begin until all members of the Examination Committee and the student's mentor are present. Failure to have all members present will result in a postponement of the exam.
4. Prior to the start of the exam, the Chair will ask the student and mentor to leave the room. In executive session, the Committee will determine whether the proposal is acceptable for examination. If the proposal is acceptable, the Examination Chair will instruct the committee on the conduct of the examination and the possible outcomes to consider.

If the proposal is deemed unacceptable, the Examination Committee must determine whether the student will be awarded a grade of Incomplete or Fail, based on the severity and extent of deficiencies of the written proposal. The Committee will provide the student with written feedback, outlining strengths and weaknesses of the proposal, and in the case of a Fail grade make a recommendation on whether the student should be allowed a second opportunity to take the qualifying exam. If permitted, the Committee will set a deadline for the submission of a revised proposal, taking into account [GSBS Policy](#) (section 9.8.1)

which permits up to 6 months before a second exam due to a grade of Fail.

5. If the exam is to proceed, the student and mentor will be asked to reenter the room and the student will give a 25-30 minute presentation of their proposal. During this time, the committee should limit their questions to those that are necessary for clarification.
6. After the oral presentation, the committee members will ask questions for 60-90 minutes about the proposal, the discipline relevant to the student's research and also examine the student's basic scientific knowledge. The Examination Committee Chair will coordinate the process to allow all committee members to examine the student.
7. The student's mentor will be a silent observer during the exam. The mentor may provide clarification during the exam only if invited to do so by the Chair of the Examination Committee.

H: RESULTS OF THE QUALIFYING EXAM

1. After the oral exam has ended, the committee will ask the student and mentor to step out of the room to discuss the student's performance. They will evaluate the student's performance based on the rubrics provided within the GSBS Qualifying Examination Result form.
2. The possible outcomes of the exam are Pass, Fail or Incomplete. This will be decided by a simple majority of the Examination Committee, determining first if the exam resulted in a grade of Fail, and if not, a second determination of whether the grade should be a Pass or Incomplete. In the case of a Pass, the [Qualifying Examination Result](#) form must be submitted to GSBS within 24 hr of the exam. The written critiques of the proposal will be emailed to the student and mentor by the Exam Chair within 48 hr of the conclusion of the exam.
3. An Incomplete is used when the Examination Committee determines that the student's proposal, background knowledge or oral exam performance is inadequate in defined areas and that additional requirements must be completed to remedy the deficiency. Within 48 hr of the exam, the Chair will provide to the student, mentor and program director the written critiques of the Examination Committee members as well as a summary of the oral exam. Requirements for satisfying the Incomplete must be specified in writing and attached to the Qualifying Examination Result form, including a date by which the additional requirements must be completed. Such additional requirement may include, but are not limited to, re-writing parts of the proposal, writing an essay on a specified subject, taking a course, and/or additional oral examination. After the requirements stipulated by the Examination Committee have been satisfied, the student will receive a Pass. If the requirements to remediate an incomplete are not completed satisfactorily, the student will receive a Fail. There is no option for a second grade of Incomplete.
4. A Fail is awarded if the student's performance on the Qualifying Exam is unsatisfactory, either at the initial examination or when an incomplete is resolved with a grade of Fail. Within 48 hr of receiving the grade of Fail, the Examination Chair will provide to the student, mentor and program director the written critiques of the Committee members as well as a summary of the oral exam. The rationale for the Fail grade, suggestions for improvements and a recommendation for whether a second qualifying exam will be permitted must be specified in writing and attached to the Qualifying Examination Result form. If permitted to attempt a second qualifying exam, the student will have up to 6 months before the next examination.

Failure of the Qualifying Exam is reported to the Promotions Committee and the student will be placed on Academic Probation. A student who fails their initial Qualifying Exam may be recommended for dismissal to the Dean by the student's graduate program and/or the Promotions Committee. A second Qualifying Exam may be taken only if recommended by the student's Program, per [GSBS Policy](#), Section 9.8.1. Any student who fails two qualifying exams will be recommended for dismissal to the Dean.

Grant Writing/QE Preparation Courses

Program	Course Title	Catalog #	Year, Term
CCB	NRSA Grant Writing & Project Development 1	GS-CC-5301	Year 1, T4
	NRSA Grant Writing & Project Development 2	GS-CC-5302	Year 2, T1
CPSB	Scientific Thinking 3: Writing & Defending Proposals I	GS-CP-6306	Year 1, T3
	Scientific Thinking 4: Writing & Defending Proposals II	GS-CP-6307	Year 1, T4
DDMT	Effectively Writing and Reviewing Proposals	GS-DD-5101	Year 2, T2
GG	Effective Grant Writing	GS-IY-6403	Year 1, T4
IY	Effective Grant Writing	GS-IY-6403	Year 1, T4
NE	Preparing for Your Neuroscience Qualifying Exam	GS-NE-5101	Year 2, T2
QCB	QCB Research Design	GS-QC-5301	Year 1, T4

Appendix B

Contributions Statement

The student should document their contributions to the design and preliminary data of the QE proposal. In addition, the names and contributions of individuals assisting the student with the preparation of the proposal. See examples in the table below.

Contributor	Nature of Contribution
Student name	Conceived and wrote Aim 1
Charlie Brown (graduate student)	Provided Figure 2 as preliminary data. Read draft proposal and provided critique.
Fred Flintstone (mentor)	Discussed Aim 1 after student wrote the aim; Discussed Aims 2 & 3 with student before the research plan was written.



Qualifying Exam Certification

This form is submitted to Graduate Program Administrator

Student Name: _____ BCM ID #: _____

Graduate Program: _____ Are you in the MD/PhD program? ☐ Yes ☐ No

PART ONE

The Student and Mentor certify that:

- The student formulated the initial Specific Aims for this proposal.
- This proposal has not been submitted as a fellowship or grant application, by either the student or anyone else.
- The student is the sole author of this proposal
- The proposal is formatted according to NIH rules
- The proposal contains Specific Aims (1 page), a Research Plan (6 pages), References (pages as needed) and an NIH-style Biosketch (5 pages).
- The student has attached a Contributions Statement indicating their contributions to the design and preliminary data of the proposal. They have included the names and contribution of individuals assisting them with the preparation of the proposal
- The student has acknowledged the source of any preliminary data in the proposal that was not generated by them.

Exam Date: _____ Date Proposal Submitted: _____

Student Name: _____ Signature: _____ Date: _____

Mentor Name: _____ Signature: _____ Date: _____

PART TWO

Exam Committee Chair certifies that:

- The complete Exam Proposal has been received by the Exam Committee at least 2 weeks before the date of the Exam.
- The proposal is complete and meets the required format guidelines for the Qualifying Exam.

Exam Chair Name: _____ Signature: _____ Date: _____

Return Completed Form to Graduate Program Administrator



Qualifying Examination Date

(See Article 9.8 of the Graduate School Policy Handbook)

This form is submitted to gsbs-forms@bcm.edu or in the Graduate School dropbox in Room N204

Student Name: _____ BCM ID #: _____ ☐ Yes
Graduate Program: _____ Are you in the MD/PhD program? ☐ No

Exam Details		
Examination Date: _____	Time: _____	Room: _____

Qualifying Exam Committee Members		
(Printed name, no signatures required)		
Chair	Non-TAC Members	TAC Members (if appointed)

Required Approvals before Submission			
	Printed Name	Signature	Date
Major Advisor:			
Co-Advisor: (if applicable)			
Graduate Program Director:			

THIS FORM MUST BE SUBMITTED TO THE GRADUATE SCHOOL PRIOR TO THE EXAM DATE.

GSBS Approval after Submission		
Graduate School Authorizing Signature:		
	Signature	Date