



**TPCB Thesis Research Proposal (TRP)
Requirements and Procedures for
ROCKEFELLER STUDENTS**

Document version: October 2019

Prerequisites: Prior to taking the TRP examination, students must pass all coursework required by the TPCB program.

Timing: The exam must be completed by **June 30th** in the second year of the program. Students who cannot meet this deadline must request an extension formally from the Program Director. Acceptable reasons for extension include a change of lab late in the second year, health issues, and child rearing responsibilities.

Structure: The TRP consists of (i) a Written Thesis Proposal and (ii) an Oral Defense describing the components of the proposed thesis research.

Committee: The TRP Committee will be comprised of the RU thesis mentor, two (2) additional RU TPCB faculty members, and a 4th TPCB faculty member NOT from your home institution (*i.e.*: Weill Cornell or MSK). In addition, students must appoint one of the RU TPCB faculty members other than the thesis mentor to serve as administrative Chair for the examination. Any appointments of non-TPCB faculty to the Committee require prior approval of the Program Director, although additional faculty above and beyond these requirements do not.

Written Thesis Proposal:

The Written Thesis Proposal should describe the research plan for student's thesis. The student should consult with their thesis mentor while preparing drafts of the proposal, but may not plagiarize an existing grant or grant application. The proposal should represent the independent ideas and presentation of the student.

The NIH F31 Predoctoral Fellowship Proposal format is required, with a total length of not more than 7 pages (including figures, excluding references):

- **Specific Aims** (exactly 1 page): Concise description of the scientific problem or question being addressed and why it is important (1–2 paragraphs), followed by a concise statement of each of the main goals of the project and approaches that will be used to achieve them (usually 2–3 specific aims, 1–2 sentences for each).
- **Significance** (1–2 pages): Scholarly presentation of background on area being investigated. Explain the importance of the problem or critical barrier that your project addresses and how the field will change if the project is successful. Also discuss particularly novel aspects of the scientific problem and/or techniques used to address it. Explain how your project seeks to shift current research paradigms and/or advances novel concepts, approaches, or methodologies. Acknowledge prior art from the literature wherever appropriate.

- **Approach – Preliminary Results** (1–2 pages): Initial results obtained by the candidate prior to this exam that support the feasibility of the research project and demonstrate the expertise of the candidate. Research results from other lab members should be discussed under “Significance”.
- **Approach – Research Design** (3–4 pages): Overall strategy and specific methodology that will be used to accomplish the specific aims of the project. For each specific aim, provide a detailed description of experimental approaches and data interpretation methods. At the end of each specific aim, provide a paragraph entitled “Potential Problems, Alternative Strategies, and Benchmarks for Success” that discusses these issues explicitly.
- **Approach – Timeline** (<1/4 page): Provide a reasonable timeline for completion of your project during the timeframe of your PhD studies. If your project involves deliverables such as discovery of novel enzyme inhibitors, provide a brief list of milestones as well (*e.g.*, Identify at least 10 inhibitors with $IC_{50} \leq 10$ mM, etc.)

The student must submit the final draft of the Written Thesis Proposal to all four Committee members at least two weeks prior to the scheduled date of the Oral Defense. Committee members must, within two weeks, approve the proposal as written or request revisions and resubmission. All four Committee members must approve the Written Thesis Proposal and email the Program Coordinator before the Oral Defense can proceed. In the event that the Written Thesis Proposal is not approved prior to the scheduled Oral Defense date, the defense must be rescheduled. Each member of the Committee is encouraged to provide the student with a short, written critique of the proposal.

Oral Defense: The Oral Defense must be scheduled officially with the TPCB and RU Graduate School Offices. Technically, Committee approval of the Written Thesis Proposal is required prior to scheduling the Oral Defense. However, as a practical matter, students are strongly encouraged to schedule Oral Defense dates at least 6 months in advance to allow for coordination of faculty schedules. In the event that the Written Thesis Proposal is not approved, the Oral Defense must then be rescheduled.

At the Oral Defense, after all Committee members are convened, the student will be excused from the room. During this time, the Committee will discuss the student’s academic process, the Written Thesis Proposal, and any other pertinent issues. The Committee will vote on the Written Thesis Proposal according to the rules of the RU Graduate School.

The student will then be invited back into the room and the Oral Defense will continue with a presentation by the student describing the salient features of the Written Thesis Proposal. The prepared presentation should be 30–40 minutes, but it may last longer if the Committee chooses to ask extensive questions during the presentation. During and/or after the presentation, the Committee will question the student. The Committee’s questions will likely focus primarily on the significance of the problem addressed, the basic chemical and biological principles governing the problem, and the logic of the experimental approach. Furthermore, the Committee will probe the student’s knowledge of the relevant scientific areas (thus, any question is “fair game”), thereby ensuring that the student is an appropriate doctoral candidate for TPCB.

When the discussion has concluded, the student will again be excused from the room. The Committee will discuss and vote on the exam according to the rules of the RU Graduate School. The Committee will prepare a written evaluation of the student, which will be forwarded to the RU Graduate School by the Chair. The student will be invited back into the room and the Committee will convey their assessment. The meeting concludes with a discussion between the student and committee members in the absence of the thesis mentor.

The following outcomes may be voted by the examining committee:

- Accept thesis proposal unconditionally
- Accept oral presentation but require rewrite of proposal
- Provisionally accept proposal but require meeting within 3 months to evaluate progress
- Reject thesis proposal and require that a new one be written and presented within 3 months
- Reject thesis proposal and recommend that student complete requirements for the MS degree
- Reject thesis proposal and recommend that student leave program with no degree