

Instructions for National Science Foundation (NSF)-style proposals

Prepare the proposal as if you will be the Principal Investigator (PI), to carry out research at the University of Maine using your advisor's facilities (and/or other relevant facilities/locations).

Please adhere to all page limitations, but only include items listed below as required.

Discussion of the proposal and its preparation with your Ph.D. advisor is strongly encouraged.

Below are the modified relevant sections from the NSF proposal guidelines that are required for the Oral Comprehensive Proposal Defense.

University of Maine

Department of Physics and Astronomy

Format for Comprehensive Exam Proposal

(Required sections)

- Cover Sheet (*1 page*)
- Project Summary (*1 page*)
- Project Description (*15-page limit*)
- References Cited (*no page limit; typical # of references >75*)
- Professional Curriculum Vitae (*1 page*)
- Facilities, Equipment and Other Resources (*2-page limit*)

A. Content of the Proposal

Cover Page (1 page)

The cover page consists of a title in an appropriate font size, at least 18 point. Underneath the title should be the student's name, prior degrees and affiliation, and the statement:

“Submitted in partial fulfillment of the University of Maine Department of Physics and Astronomy Oral Comprehensive Requirement.”

The date of the oral defense presentation followed by the names of the Committee members (The thesis advisory committee members)

This page should not be numbered.

Project Summary (1 page)

Each proposal must contain a summary of the proposed project not more than one page in length. The Project Summary consists of an overview of the research, a statement on the intellectual merit of the proposed activities, and a statement on the broader impacts of the proposed activities.

The overview includes a description of the activities that would result if the proposal were funded and a statement of objectives and methods to be employed. The statement on intellectual merit should describe the specific physics problem being investigated and the potential of the proposed activity to advance the fundamental and/or applied scientific understanding in the field. The statement on broader impacts should describe the potential of the proposed activity to benefit society and contribute to the achievement of specific, desired societal outcomes.

The Project Summary should be written in the third person, informative to other persons working in the same or related fields, and, insofar as possible, understandable to a scientifically or technically literate lay reader. It should not be an abstract of the proposal.

This page should not be numbered.

Project Description (15-page limit)

The Project Description should provide a clear statement of the work to be undertaken, and must include the following information:

(i) *Introduction and Problem Statement* - discusses the overall scientific problem as well as the specific technical (physics) problem to be addressed in the proposed work.

(ii) *Background Information* - provides an integrated review of previous work done by other researchers in the field with appropriate technical references, as well as brief overview of specific physics information that is needed to describe the proposed thesis tasks to be undertaken.

(iii) *Research Objectives* - clearly itemizes the specific research objectives that will be accomplished by carrying out the experimental and/or theoretical work.

(iv) *Proposed Research Tasks* - itemize the specific sets of experiments, computations, and/or activities that will be accomplished during the PhD work, as well as address the physics questions that will be potentially answered by the research.

(v) *Broader Impacts of the Proposed Activities* - advancement of scientific knowledge and activities that contribute to the achievement of societally relevant outcomes. Such outcomes include, but are not limited to: full participation of women, persons with disabilities, and underrepresented minorities in science, technology, engineering, and mathematics (STEM) education and educator development; increased public scientific literacy and public engagement with science and technology; increased partnerships between academia, industry, and others.

(vi) *Timeline for Proposed Work* – a brief timeline showing the projected timeline for milestones and accomplishments.

The Project Description is numbered starting from -1- at the bottom center of the page.

NOTE: Page Limitations and Inclusion of Uniform Resource Locators (URLs) within the Project Description - The Project Description **may not exceed 15 pages**. Proposals shorter than 15 pages are often viewed negatively, and the Department requires that a proposal be at least 12 pages long. Visual materials, including charts, graphs, maps, photographs and other pictorial presentations are included in the 15-page limitation. PIs are cautioned that the Project Description must be self-contained and that URLs that provide information related to the proposal should not be used because (i) the information could circumvent page limitations, (ii) the reviewers are under no obligation to view the sites, and (iii) the sites could be altered or abolished between the time of submission and the time of review.

References Cited (no page limit; typical # of references >75)

Reference information is required. Each reference must include the names of all authors (in the same sequence in which they appear in the publication), the article and journal title, book title, volume number, page numbers, and year of publication. If the document is available electronically, the website address also should be identified. Proposers must be especially careful to follow accepted scholarly practices in providing citations for source materials relied upon when preparing any section of the proposal. While there is no established page limitation for the references, this section must include bibliographic citations only and must not be used to provide parenthetical information outside of the 15-page Project Description. Typically >75 references are to be cited in order to demonstrate an in-depth knowledge of previous publications concerning the thesis topic.

Professional Curriculum Vitae (1 page)

This one-page CV should list Educational Training (undergraduate and graduate institutions including majors, degrees, and dates of attendance), Professional Work Experience, Publications and Conference Presentations (if any), and a few Synergistic Activities that demonstrate skills, collaborations, accomplishments, outreach, etc.

Facilities, Equipment and Other Resources (2-page limit)

This section of the proposal is used to assess the adequacy of the resources available to perform the effort proposed to satisfy both Intellectual Merit and Broader Impacts review criteria. Proposers should describe only those resources that are directly applicable.

Proposers should include an aggregated description of the internal and external resources (both physical and personnel) that the organization and its collaborators will provide to the project, should it be funded. If there are no Facilities, Equipment and Other Resources to describe, a statement to that effect should be included in this section of the proposal.

B. Format of the Proposal

Margin, Spacing, and Formatting Requirements

The proposal must be clear, and all sections must conform to the following:

- a) Use one of the following typefaces identified below:
 - Arial, Helvetica, Palatino, Courier New, or Palatino Linotype at a font size of 10 points or larger;
 - Times New Roman at a font size of 11 points or larger; or
 - Computer Modern family of fonts at a font size of 11 points or larger.

A font size of less than 10 points may be used for mathematical formulas or equations, figures, table or diagram captions and when using a Symbol font to insert Greek letters or special characters. PIs are cautioned, however, that the text must still be readable.
- b) At least single-spaced and no more than six lines of text within a vertical one inch space.
- c) Margins, in all directions, must be one inch.
- d) Use only a standard, single-column format for the text.