PHY 302 *Student Research Symposium* Guidelines

Guidelines for lab experiment:

- Physics 302 students will use resources to independently identify a research problem, develop and conduct a lab experiment, and present findings as part of a *Student Research Symposium* during finals week.
- Students will work individually; no group research projects will be allowed.
- Students must work independently, but may consult with others about experimental design, development, and deployment.
- It is suggested that resources such as *The Physics Teacher* or *The Science Teacher* be reviewed to identify a problem worthy of research; a tour of the physics storeroom might also help in the development of a research topic.
- The research must consist of more than merely following the directions of a cookbook lab should such a reference be used; the student should contribute significantly to the design of the experiment which should be based on some form of hypothetical or theoretical background.
- The research need not be original and may duplicate the efforts of others as a way of verifying their work.
- The research topic must be "substantive" and "significant," and must be approved by the course instructor prior to development and implementation.
- The research must incorporate the use of computer-based data collection probes.
- Students may borrow lab and course materials to conduct their research projects, but materials not readily available in the department become the student's responsibility.

Guidelines for poster content:

- Title followed by researcher's name
- Abstract – Should be self-contained, concise, and specific, it should be non-evaluative, coherent, and readable; it should be no more than 100 words.
- Introduction – Present specific problem studied and describes the research strategy. A good introduction will answer the following questions in a single paragraph:
    - What is the point of the study?
    - How does they hypothesis (if any) and the experimental design relate to the problem?
    - What are the hypothetical or theoretical propositions tested (if any), and how were they derived?
    - What is the purpose or rationale for the experiment?
- Apparatus – Describe materials and their function in the experiment.
- Procedure – Summarize each step in the execution of the research.

- Results – Summarize the data collected and the main results. This section should include tables, figures, and statistical presentation as appropriate to justify the results. Do not include raw data with the exception of illustrative examples.
- Discussion – Evaluate and interpret implications in relation to hypothesis, theories, or other guiding construct.

Guidelines for poster appearance: (abridged AAPT guidelines)

- Each poster session author will be provided with a 4' x 4' poster board area and a 3' x 15" table beneath it to hold handouts or a laptop. Authors are responsible for mounting their own material at least one hour prior to the opening of the session and for removing it at the end of the session. Posters left up past that time will be discarded.
- The event host will provide a reasonable supply of pushpins.
- Each poster must include text in a large enough font (~20 point font) to be read easily by attendees from a distance of 4 to 5 feet or more. Lettering on illustrations should be large and legible. Images should be a minimum of 5 x 7 inches. Material should be displayed in logical sequence (introduction, development, conclusion) and each sheet should be numbered.
- The effectiveness of a poster presentation will be enhanced by using techniques such as mounting the sheets on colored construction paper, etc., to improve the graphic impact. Please note, however, that simplicity, ease of reading, etc., are more important than artistic flair.
- Avoid overcrowding figures and cramming too many numbers into tables. Legends and titles should accompany all figures, tables, photographs, etc. in order to allow their immediate identification.
- Requests for extra space to accommodate models or equipment should be made in advance of the session.

Guidelines for poster presentation:

- Student researchers must remain with their poster during the entire Student Research Symposium which lasts for two hours.
- Student researchers must be prepared to deliver a presentation to judges in small groups else one-on-one.
- Student researchers should be familiar with the nature of the SRS rubric used to assess the presentation, poster, and research.