

Project: Preparation of a Research Guide**Out:** March 22, 2007**Due Dates:**

Topic approved: March 29, 2007

Written document: April 12, 2007

Presentation: April 19/20, 2007

Learning Objectives:

- Students will be able to find and summarize material from an area of physics.
- Students will be able to cite sources properly following the format of the AJP Resource Letters.
- Students will be able to categorize resources according to:
 - format and purpose
 - technical level
 - topical emphasis within the area
- Students will be able to provide brief descriptive (and occasionally evaluative) annotations on material.
- Students will be able to explain in a clear manner, both in written and oral form, the important concepts and questions within an area of physics.

Output:

- 1) Research Guide: This guide should be similar in format to a Resource Letter from the American Journal of Physics.¹ The purpose of the guide is to enable upper-division science majors to quickly gain an overview of an unfamiliar area of physics and identify an entry point into the literature of that area.
- 2) Presentation: Within three days after submitting the research guide, each student will have a 15-minute appointment with the instructor (use the sign up sheet outside Dr. Ingham's office) to discuss his/her document as submitted and to prepare for a 10-minute presentation at the next class meeting.

Note: As the final two minutes of his/her presentation, each student should suppose a friend is about to attempt a similar assignment and address the question: What advice would you offer (other than "change your major"!) to streamline the friend's work?

¹ Resource Letters are guides for college and university physicists, astronomers, and other scientists to literature, websites, and other teaching aids. Each Resource Letter focuses on a particular topic and is intended to help teachers improve course content in a specific field of physics or to introduce non-specialists to this field. Items in the Resource Letter below are labeled with the letter E to indicate elementary level or material of general interest to persons seeking to become informed in the field, the letter I to indicate intermediate level or somewhat specialized material, or the letter A to indicate advanced or specialized material. No Resource Letter is meant to be exhaustive and complete. (Statement on Resource Letters. Am. J. Phys. 74 (5), May 2006, 375.)

Getting Started: Students will find a list of past AJP Resource Letters at: <http://www.kzoo.edu/ajp/letters.html> but can choose an alternate area, subject to instructor's approval. All topics must be approved by Dr. Ingham by **March 29, 2007**.

Notes:

- Topics for which AJP has published a Resource Letter within the last five years (**since January 2002**) are not eligible.
- Topics of earlier AJP Resource Letters are eligible, but should consist of **at least 50%** new resources. (In this case, attach a copy of the original Resource Letter.)

Sections of the research guide should include:

- Narrative Introduction:
 - History of the area
 - Current research emphases and/or application trends in the area
- Resources:
 - Journals
 - Books and major compilations
 - General Review Articles
 - Selected Research Articles
 - Web and Video Resources

Wherever possible, the number of resources in each category should be not fewer than 5 and not more than 15. A brief descriptive annotation or evaluation should be provided for most of the resources. (This is particularly true of any books that are listed.)

The research guide must be submitted as a PDF attachment to an email to Dr. Ingham (inghamwh@jmu.edu) and is due by April 12th, 2007. (**Be sure to hold onto your Word document because you will need it when preparing your presentation.)

Electronic resources useful for this assignment are found here:

<http://www.lib.jmu.edu/physics/phys392lib.aspx>