**Research Syllabus - Fall**

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| Syllabus: | Due Date: |
| Research proposal (5%) |  |
| Introduction (10%) |  |
| Working Setup and preliminary data "show and tell day" (10%) |  |
| Research defense (5%) |  |
| Final Paper (70%) |  |

The first two will not be accepted late (Proposal and Intro)

Introduction

|  |  |
| --- | --- |
| A good introduction includes •**background information** about your topic logically organized from broad to narrow (with citations), a concise •**description of the question** (with •defined variables) you are answering accompanied with your •**hypothesis**, (with •defined variables) and a •**bibliography** with at least five sources. Use your favorite method of citation and bibliography entry | 10 |
| You are missing any one bulleted item above, or have done a less than serious job on two. | 8 |
| You are missing any two bulleted items above, or have done a less than serious job on three. | 6 |
| You are missing any three bulleted items above, or have done a less than serious job on four or more. | 3 |
| Your summary **is not word processed**, or you fail to meet any descriptor above | 0 |

Working Setup/Data

|  |  |
| --- | --- |
| The setup is complete and you are ready to take data. You have taken and analyzed some preliminary data. | 10 |
| The setup is largely complete, but there are a few minor problems to be solved. You have taken and analyzed some preliminary data. | 8 |
| The setup is still in progress, about half finished. You have taken and analyzed some preliminary data. | 6 |
| **No or insufficient preliminary data has been taken.** You have tried few preliminary trials, but have made little progress toward the final experimental setup | 4 |
| You have made no progress toward an actual experimental setup | 0 |

Your Paper (70%) will be graded according to these criteria:

Introduction 10%

Method 15%

Results 15%

Conclusion 40%

Writing 10%

Production 5%

Not Procrastinating 5%

Introduction – 10%

•Provides background information to explain the context of the experiment,

•States the problem and hypothesis, and why you hypothesize what you do

•Defines the variables as independent, dependent, and controlled.

Method – 15%

•Written as a paragraph, not a list,

•Diagram that shows how the data was gathered (pictures are often unclear as diagrams),

•List of the materials

•Has sufficient detail that someone could replicate the experiment.

Results – 15%

•Table of data with units and uncertainty

•X-Y scatter graphs with points and error bars where appropriate. (show me your graph if you don’t know what I mean by x-y scatter graph – it is not a line graph in Excel)

•General form of any calculation you made

•Brief summary of results (1-3 sentences)

Conclusion – 40%

•Brief summary of results (1-3 sentences)

•Evaluate your hypothesis

•Explain (using your vast knowledge of physics) why you think your data turned out the way it did.

•Discuss the main sources of error

•Suggest improvements to your procedure.

Writing skill – 10%

The author took care to write clearly and well. The paper has been proofread, and re-written, the paragraphs make sense, and the paper is logically organized. The writer's voice is neither absent nor does it interfere with the presentation

Production/Format – 5% (follow exactly!)

•The paper is neatly word processed.

•It includes a •title page, •a table of contents, •numbered pages starting with the body of the paper, •a bibliography in the style of your choice, •diagrams or pictures adjacent to any text that refers to a setup of any kind, •appropriate computer created graphs of relevant data adjacent to any discussion of the data.

•Is in this order: Intro, Method, Results, Conclusion. It looks nice.

Not Procrastinating – 5%

•All your data is all gathered before the end of winter break.