

Senior Independent Research Syllabus – Physics 494, 4 credits – approx. 20 hours/week\*\*

Topic: TBA, Research Advisor: TBA

Meeting Times: We will meet as a group once each week, additional TBA

Your senior research project will consist of a number of components, some yet to be determined. Tasks for you to do include the following and more: Planning your project, learning to do library research, background literature search, gathering data and information, analysis, and writing a paper. It will culminate in the coherent presentation of theory and results in the form of a paper and a presentation.

The components will contribute to your final grade in this way:

**Progress: Research and Writing 50%** - oral reports of progress and what you will be doing in the following week will be made at our weekly group meeting; *reasonable work and progress must be shown each week*\*\*

**Final Paper 30%**

**Final Presentation 20%**

Week Due	Task	Actual Due Date
TBA	Progress report each week	
Week 1	Outline of tasks and paper	
	Make library appointment to learn lit search	
	Complete Literature Search – start article summaries	
Week 2	Literature Review Sub-Section written	
Week 2	Write Section 1: Background and Significance	
Week 3	Write Section 2 – Material and Methods	
Weeks 1-3	Run preliminary experiments or design/build (this can be broken down farther after outline is complete)	
Weeks 4-5	Run primary experiments or run/test design	
Weeks 6-7	Work on improvements and final tests	
Week 6	Write Sections - Results, Discussion, Conclusion/Draft Paper	
Week 6	Draft Talk, Practice at least twice	
Week 7 Thurs. 4 pm	Final Presentations	
Last Day of Finals	Final Paper Due	
Spring	Symposium Presentation	
Spring	Senior Dinner - after symposium (F) or before academic awards (W) in spring	

Guidelines:

\*\*Expected Time Commitment: A four credit class normally meets 5 hours/week, and has expected out of class work of 17.5 hours per week. When counting hours committed, they include both independent research and meeting times. So depending on how much we meet as a group, and how much you meet with your advisor, the balance of the 22.5 hours needs to be spent working independently! Your grade for the progress portion of your overall grade will not exceed the average percentage of hours that you have worked of the total expected (22.5). So for example, if you spend 2.5 hours/week in meetings, and you only do 15 hours per week of independent research, then your grade for the progress portion cannot exceed  $17.5/22.5 = 78\%$ . If you then were to get an A on the paper and presentation, that would average to be a B on the project.

Reminder from Physics Seminar of general guidelines:

<http://physics.randolphcollege.edu/psheldon/classes/p495>

**Research:** We will have weekly group research meetings at which each senior will report on their progress in the past week and what they plan to do in the following week. These are informal, weekly reports. Each student must also do one formal oral report (approximately 30 minutes) during these research group meetings each semester they are doing research.

**Final Paper:** Minimum 20 pages. Length depends on subject and commitment to the project. A significant component of this will be background, literature, theory. Use Word or some typesetting program to write it, formatting information is in the style guide at above link. You must print a bound, paper copy for each member of the Department (check with faculty if they would prefer electronic).

**Final Presentation:** Project will culminate with an oral presentation or a poster, which also will be presented at Symposium of Artists and Scholars in the spring.