

Phys 485: Senior Honors Seminar

Phys 494: Seminar on Current Problems in Physics

Course Website:

http://www.phys.washington.edu/users/deepg/phys485_494/

Class Meeting Time: Tuesday 130-320pm in Rm A110

Instructor: Subhadeep Gupta, Rm B428.
deepg@uw.edu, 616-9649

Office Hours: Tuesday 330-430pm, Rm B428.
Other times by appointment.

Course Structure

Topic Selection

Select a research topic.

Submit an abstract.

Literature Research

The references should be journal publications

Feel free to discuss your work with the instructor

Oral Presentation

Use Tegrity to record your talk and discuss it with the instructor ahead of your in-class presentation.

In class presentation: 13 min talk + 7 min discussion

Discussion

Contributions to in-class discussions. WebQ Feedback.

Written Paper

1 Draft and 1 final research paper (at least 5 pages)

Course Schedule

Oct	01	Introduction to Class
	08	Discuss and Finalize Topics
	11	Deadline: Abstract Submission
	15	No class
	22	Talks 1
	29	Talks 2
Nov	05	Talks 3
	12	Talks 4
	19	Talks 5
	22	Deadline: Draft Paper Submission
	26	Talks 6
Dec	03	Talks 7
	09	Deadline: Final Paper Submission
	10	Talks 8 and summary

Course Schedule

Oct	01	Introduction to Class
	08	Discuss and Finalize Topics
	11	Deadline: Abstract Submission
	15	No class
	22	Talks 1 (Dry run due Oct 18)
	29	Talks 2 (" Oct 22)
Nov	05	Talks 3 (" Oct 29)
	12	Talks 4 (" Nov 05)
	19	Talks 5 (" Nov 12)
	22	Deadline: Draft Paper Submission
	26	Talks 6 (Dry run due Nov 19)
Dec	03	Talks 7 (" Nov 26)
	09	Deadline: Final Paper Submission
	10	Talks 8 and summary (Dry run due Dec 03)

Grading Policy

Participation in Class discussions	20%
WebQ Feedback on fellow student talks	10%
Your presentation	30%
Your final paper	40%

There is no final exam.

75% corresponds to a grade of 3.5.

A grade of 0.0 will be given to anyone not completing their paper and presentation.

Sample Research Topics

Fundamental Constants: Eg. G , g -2 of electron, muon, fine structure constant α . How are they measured? Current best values? Does α change with time?

Quantum Simulation and Information Science: How can trapped atomic gases model complex quantum systems (superconductors, neutron stars).
What is quantum entanglement? Demonstration of quantum logic.

Elementary Particles: Higgs boson at the LHC. Evidence for neutrino mass, current status.

Gravity Waves: What are they? How do you look for them? LIGO and optical cavities.

Atomic Clocks: How does precision spectroscopy result in the time standard and GPS?

Condensed Matter: What makes Graphene exciting? Status of high- T_c superconductivity?

Web Survey for Topic choices coming soon, stay tuned. Required in time for next class

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