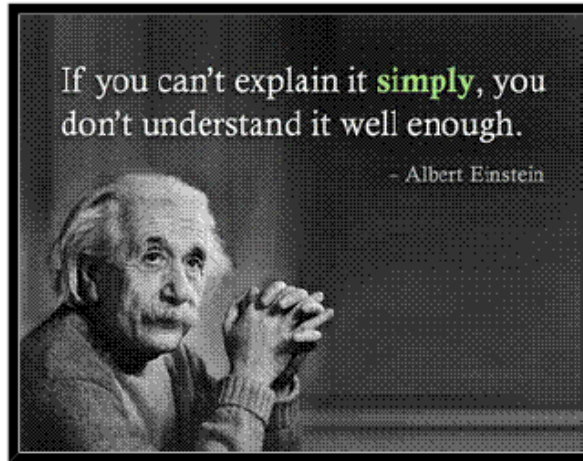


Physics 596 Course Introduction, Fall '20



Physics 596

Graduate Physics Orientation

Fall 2020

The whole of science is nothing more than a refinement of everyday thinking.

—Albert Einstein, *Physics and Reality*, 1936

Home

Course Info

Syllabus

Assignments

Resources

Course Instructors:

Lance Cooper: 227B Loomis, 333-2589 (departmental)
218 MRL (research)

Celia Elliott: 215 Loomis, 244-7725 (departmental)

Course Webpage: <https://courses.physics.illinois.edu/phys596/fa2020/index.html>

Our goals for you in Phys 596

Introduce you to research opportunities in Physics, etc.

Help you connect with a research advisor (about 70% of course)

Help you improve your abilities in scientific communication

Methods for making your scientific writing and presentations more persuasive

Teach you how to navigate the scientific literature

Researching existing literature is critical for planning future work, writing proposals, writing papers, etc.

Gain practice working in and leading a team

Collaboration is key in science

Provide details into how the “world of science” works

e.g., how publication process works, what happens at scientific conferences, how to find advisors, how to write and research scientific papers/presentations, etc.

Elements of Phys 596

1. Help finding a research group

- Faculty research presentations throughout the semester

Scheduled so far:

Astrophysics/Gravitation/Cosmology: Charles Gammie, Helvi Witek, Nico Yunes

Biological physics: Alek Aksimentiev, Ido Golding, Paul Selvin, Jun Song

Condensed matter experiment: Vidya Madhavan, Fahad Mahmood, Nadya Mason

Condensed matter computation/theory: Karin Dahmen, Nancy Makri, Richard Weaver

Quantum Information/AMO: Jacob Covey, Angela Kou, Wolfgang Pfaff

High Energy: Yoni Kahn, Kevin Pitts, Jessie Shelton

Intermediate energy/Nuclear Physics: Anne Sickles

Physics Education Research: Eric Kuo

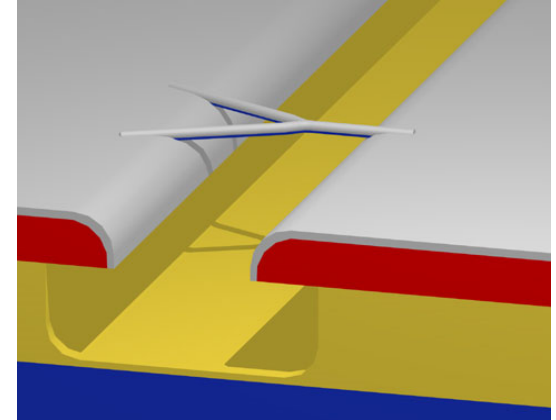
Elements of Phys 596

2. Skills essential to researchers

Writing/Presentation Skills

How to create and present journal club and research talks

How to write persuasive scientific papers



Scientific Scholarship

How to use on-line databases useful for research

Learning how to do what scientists do

Learning to write referee reports

Learning how the publication process works

*Scientific Ethics

Discuss real life case studies

*Required by OVCR & NSF

Why is Persuasive Writing and Speaking Important in Science?

It's not just all about good data/calculations: you will be judged as much for the quality and accessibility of your logical presentation as for the quality of your results

It will be particularly important for you to communicate your results to non-experts

- prelims and dissertation defenses
- proposals
- colloquia
- public lectures

⇒ we'll emphasize this in this class

Elements of Phys 596

4. Experience with collaborations: working in teams

Team	Last Name	First Name
1	Baptista	Alejandro "Ale"
	Bauer	Adam
	Belkin	Daniel
	Bhikha	Ayesha
	Bista	Aayam
2	Bogucki	Ryan
	Campbell	Jennifer
	Cao	Junyi
	Chari	Rajas
	Cheng	Cheng-Hsin
3	Cheng	Murong
	Chow	Chun Yu
	Christopherson	William
	Cieszynski	Samuel
	Clarisse	Nicolas "Nick"
4	Cordeiro	Ian
	Cross	Jonathan "Sam"
	Diaz	David
	Ding	Xiaochuan David
	Floyd	John
5	Forbes	Diana
	Gibson	Jared
	Gliozzi	Jacopo
	Gold	Maxwell
	Harris	Ian
6	Hassan	Albur
	Hegade Kumbale Raveesha	Abhishek
	Hilbert	Kiriakos
	Honeycutt	Anna
	Hou	Jiasen
7	Hrnjic	Adin
	Hsu	Yun-Tzu
	Huang	Chenxi
	Huie	William Chiu Wong "Will"
	Jenike	Brian
8	Joshi	Sonali
	Kaur	Surkhab
	Khera	Nirvaan
	Klinger	Marc
	Koch	Patrick

9	Kodumagulla	Abhishek
	Kunapuli	Nikhil
	Lawson	Alexander
	Lewsirirat	Sarat
	Li	Zihan
10	Liu	Yingkai
	Manning-Coe	Dmitry
	McPheron	Mari
	Michel	Dina
	Miloro	Paul
11	Mollenhauer	Michael
	Mroczek	Debora
	Mullen	Ethan
	Mullins	Nicki
	O'Brien	Matthew
12	Osborne	Ian
	Ouellette	Aaron
	Owen	Randy
	Peng	Wei-Hsiang
	Purakayastha	Ujaan
13	Reggio	Benjamin
	Rojas Huamani	Jairo Martin
	Romanelli	Marisa
	Royal	Ellen
	Salinas San Martin	Jordi
14	Shelton	Thomas
	Skye	Carissa
	Stover	Madeline "Maddie"
	Tiki	Victoria
	Vijay	Akash
15	Waite	Emily
	Wang	Yuhuan
	Weaver	Nicholas
	Wentzel	Michael-Henry
	Yang	Yumu "William"
Zhong	Qiantong "Zed"	

<https://courses.physics.illinois.edu/phys596/fa2020/courseinfo.html>

Grading Policy

- Complete the assignments
- You'll critique each other's work. Your work won't be graded so much on content as on the fact that it has been completed conscientiously!
- Attendance is required

Don't worry about your grade in this class!!

⇒ You'll do well if you complete the assignments

⇒ The skills you develop will be far more important than the grade you get here!!

COVID-19 Policy

- Students attending class in person are required to wear a mask
 - ⇒ I'll bring spare masks to class (including a couple of extra copies of the Mask of the Week (MOW)* for any interested students), but anyone refusing to wear a mask will be asked to leave the classroom

*The Phys 596 Lecture 1 Mask of the Week:



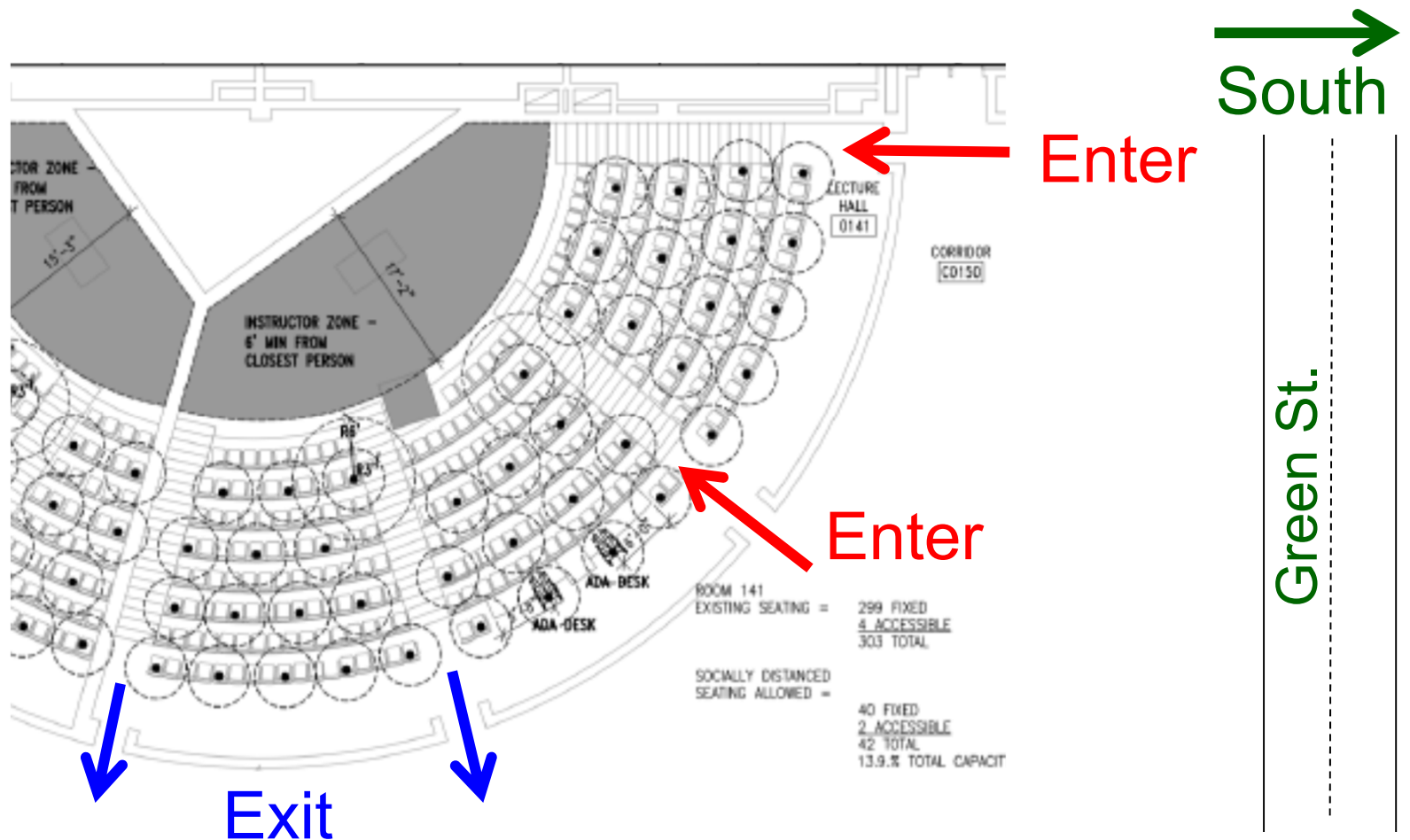
COVID-19 Policy (cont.)

- Only 40 students can attend in person at a time in 141, and only designated seats can be occupied
- ⇒ If more than 40 students want to attend in person, we'll have to set up a rotation system for in-person attendance.



COVID-19 Policy (cont.)

- To avoid unnecessary contact with students in other classes, please enter 141 through one of the south entrances and leave through one of the southwest doors.



COVID-19 Policy (cont.)

- Please don't come to class if you're not feeling well
- Students entering Loomis are required to have had a saliva test within the last 4 days
- If you have a positive COVID-19 test, please quarantine yourself! You can attend class remotely!

Our agenda

Physics 596 - Course Syllabus - Fall 2020

(Syllabus is subject to change!)

[Physics 596 Fall 2020 Channel on Media Space](#)

Lectures will be videotaped and posted on “Phys 596 Fall 2020” Channel on Media Space

<https://courses.physics.illinois.edu/phys596/fa2020/syllabus.htm>

Week	Date	Topics	Lectures	Assignments	Reading	Zoom/Video
1	Aug 28	<p>Introduction and course expectations</p> <p>How to find an advisor</p>	<p>slides</p> <p>slides</p>	<p>Major Group Assignment Create and present a group Journal Club PowerPoint talk + individual referee reports</p>		<p>Zoom Link</p> <p>Video Recording</p>
2	Sep 4	<p>Research in Experimental Condensed Matter and Quantum Information- Prof. Angela Kou</p> <p>Creating/giving a journal club presentation</p> <p>How to read scientific papers</p>	<p>slides</p> <p>slides</p>			<p>Zoom Link</p> <p>Video Recording</p>

Physics 596 Fall 2020 Media Space Channel

[Phys 596 Fall 2020 Media Space Channel](#)

media space
Illinois

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Physics 596 Fall 2020

PHYS 596 A 2020 Fall CRN51381
PHYS 596 AOL 2020 Fall CRN74691

Fall 2020 Illinois Physics Grad Student Orientation
Friday, August 14, 2020 (start time: 10 am Central Time)

- Introductions and General Information (~70 minutes)
 - Lance Cooper... Welcome
 - Luke Prunkard... Information on Facilities/Keys/Inventory
 - Rebecca Wittborg... Information on My Physics/Website
 - Elaire Schulte... Information for Graduate Teaching Assistants
 - Celia Elliott... Information about Graduate Fellowships
 - Mary Schlembach... Information on the Physics Library
 - Rachel Nguyen... Physics Grad Student Association
 - Shvabang Goswami and Kai Shintrough... Graduate Employees Organization
- Break (15 minutes)
- Grad Program Information (~20 minutes)
 - Lance Cooper... Overview of the Illinois Physics Grad Program
- TA Training Session: 2:00 – 5:00 p.m. (Elaire Schulte and others)

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Subscribed

1 Media

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Our agenda

Physics 596 - Course Syllabus - Fall 2020

(Syllabus is subject to change!)

[Physics 596 Fall 2020 Channel on Media Space](#)

Zoom links to the lectures can be found here for students attending remotely

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Our agenda

Physics 596 - Course Syllabus - Fall 2020

(Syllabus is subject to change!)

[Physics 596 Fall 2020 Channel on Media Space](#)

Links to lecture videotapes on the Phys 596 Media Space channel can be accessed here

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		How to find an advisor	slides	PowerPoint talk + individual referee reports		Video Recording
2	Sep 4	Research in Experimental Condensed Matter and Quantum Information- Prof. Angela Kou				Zoom Link
		Creating/giving a journal club presentation	slides			Video Recording
		How to read scientific papers	slides			

Our agenda

Physics 596 - Course Syllabus - Fall 2020

(Syllabus is subject to change!)

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<https://courses.physics.illinois.edu/phys596/fa2020/syllabus.htm>

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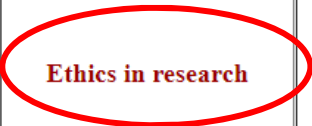
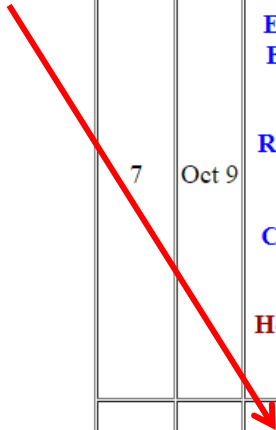
Our agenda (cont.)

3	Sep 11	<p>Research in Experimental Biological Physics - Prof. Paul Selvin</p> <p>Research in Experimental Biological Physics - Prof. Ido Golding</p> <p>How to use on-line scientific resources</p>	<p>slides</p>	<p>mini-Assignment #1 On-line resource activities</p>	<p>Resource Activities</p> <p>Prof. Casey Miller's (RIT) advice on using scientific resources</p>	<p>Zoom Link</p> <p>Video Recording</p>
4	Sep 18	<p>Research in Experimental Quantum Information - Prof. Wolfgang Pfaff</p> <p>Research in Theoretical High Energy Physics - Prof. Yoni Kahn</p> <p>Research in Experimental Condensed Matter Physics - Prof. Nadya Mason</p>				<p>Zoom Link</p> <p>Video Recording</p>
5	Sep 25	<p>Research in Computational Biological Physics - Prof. Alek Aksimentiev</p> <p>Research in Experimental Quantum Information - Prof. Jacob Covey</p> <p>Publication process; How to write a referee report</p>	<p>slides</p>			<p>Zoom Link</p> <p>Video Recording</p>

Our agenda (cont.)

Scientific ethics training required by OVCR Office

6	Oct 2	<p>Research in Theoretical Condensed Matter Physics - Prof. Karin Dahmen</p> <p>Research in Theoretical Astrophysics, Gravitation, and Cosmology - Prof. Charles Gammie</p> <p>Research in Theoretical Astrophysics, Gravitation, and Cosmology - Prof. Helvi Witek</p>				<p>Zoom Link</p> <p>Video Recording</p>
7	Oct 9	<p>Research in Experimental Medium Energy Physics - Prof. Anne Sickles</p> <p>Research in Theoretical Astrophysics, Gravitation, and Cosmology - Prof. Nico Yunes</p> <p>How to write a scientific abstract</p>	slides	<p>mini-Assignment #2 Write an abstract for selected paper</p>	Abstract Papers	<p>Zoom Link</p> <p>Video Recording</p>
8	Oct 16	<p>Ethics in research</p>	slides		Ethics Case Studies	<p>Zoom Link</p> <p>Video Recording</p>



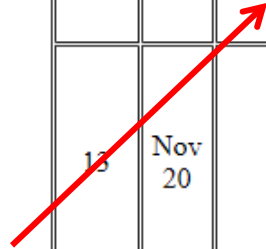
Our agenda (cont.)

9	Oct 23	<p>Physics Education Research - Prof. Eric Kuo</p> <p>Research in Experimental High Energy Physics - Prof. Kevin Pitts</p> <p>Research in Theoretical and Experimental Acoustics - Prof. Richard Weaver</p>				<p>Zoom Link</p> <p>Video Recording</p>
10	Oct 30	<p>Research in Computational Biological Physics- Prof. Jun Song</p> <p>Research in Experimental Condensed Matter Physics - Prof. Fahad Mahmood</p> <p>Research in Experimental Condensed Matter Physics- Prof. Vidya Madhavan</p>				<p>Zoom Link</p> <p>Video Recording</p>
11	Nov 6	<p>Research in Theoretical Molecular and Condensed Matter Physics - Prof. Nancy Makri</p> <p>Template for a journal club presentation</p>				<p>Zoom Link</p> <p>Video Recording</p>

Our agenda (cont.)

12	Nov 13	Research in Theoretical High Energy Physics - Prof. Jessie Shelton Journal club presentations:	Scientific Poster Example/Template			Zoom Link Video Recording
13	Nov 20	Journal club presentations:				Zoom Link Video Recording
	Nov 27	Thanksgiving Break				
14	Dec 4	Journal club presentations:				Zoom Link Video Recording

Team journal
club
presentations



**Journal club
presentations:**