Introductions and General Information (~70 minutes)
Lance Cooper.....Welcome
Luke Prunkard............Information on Facilities/Keys/Inventory
Rebecca Wiltfong............Information on My Physics/Website
Elaine 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
Shubhang Goswami and Kai Shinbrough....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. (Elaine Schulte and others)
By now, you should have done the following:

- Completed your employment paperwork (I-9 form, New Hire form) if you’re a TA or RA
- Registered for classes on-line!
  -- You must maintain at least 8 credit hours each semester to be a full-time student and keep an assistantship ⇒ No Later than Sept.4!
- Received and accepted your teaching/research assistantship offer
- Received your teaching assignment if you’re a TA
  -- Sign up for mandatory campus TA training next week! Watch TA training “bootcamp” this afternoon

If you haven’t done all this yet, or if you have questions/concerns, please contact me soon!
Bookmark the Grad Student Blog!

https://physics.illinois.edu/academics/graduates/blog/

Information consolidated in Physics Graduate Student Handbook
DEGREE REQUIREMENTS

COURSE REQUIREMENTS
The Graduate College requires 96 hours (formerly 24 units) of course work for the PhD, including research units in Physics 597 and Physics 599. Most physics students having half-time assistantships take 8 hours per semester plus 4 to 8 hours in the summer, so the total credit requirement may be fulfilled in approximately four years. Note that at least 6 hours of PHYS 599 Thesis Research is required; most students have many more.

AS A BREADTH REQUIREMENT, TWO OF THE FOLLOWING SEVEN COURSES ARE REQUIRED

- Physics 540 Theoretical Astrophysics
- Physics 550 Biomolecular Physics
- Physics 560 Condensed Matter Physics I
- Physics 569 Emergent States of Matter
- Physics 570 Subatomic Physics
- Physics 513 Topics in Quantum Optics and Information or Physics 514 Modern Atomic Physics.
- Suitable substitute breadth course(s) approved by the Associate Head for Graduate Programs

Note that only one of either the Physics 560 or Physics 569 courses counts toward the breadth requirement and only one of either Physics 513 or Physics 514 counts toward the breadth requirement.

In addition, all students are urged to take Quantum Mechanics I and II (Physics 580 and 581), Mathematical Methods A and B (Physics 508 MMA) and Physics 509 (MMB), Classical Electromagnetism (Physics 505), and Statistical Physics (Physics 504). Students will find a number of advanced courses on more specialized topics indispensable in their preparation for research.

The department has no formal language requirement. Graduate students may find it advantageous, however, to be proficient in reading articles in a foreign language. For this reason, graduate students are allowed to enroll in language courses offered in the various language departments at Illinois.
First Year Courses at UIUC

- There are few course requirements
  - Biophysics
  - Nuclear and Particle
  - Astrophysics
  - Quantum Optics & Information or Atomic Physics
  - Condensed Matter or Emergent States of Matter
  - Appropriate substitute course

- But it’s likely you will start with
  - Quantum Mechanics I and II (580,581)
  - Mathematical Methods 1 and 2 (508, 509)
  - Electricity and Magnetism (505), Statistical Mechanics (504)
  - Undergraduate Quantum 2 (487), E&M 2 (436), Classical Mech 2 (326), Stat Mech (427)

- And everyone takes 596 (Physics Orientation)
First Few Semesters at UIUC

Advanced courses specialize

- Condensed Matter Physics II
- Quantum Field Theory I and II
- Particle Physics
- General Relativity
- Nonequilibrium Statistical Physics
- Special topics (Phys 598) courses – one benefit of a big department!!

After your first year or two, you will primarily take research credits:

Physics 597, Independent Study – Graded class, taken prior to prelim
Physics 599, Thesis Research – Taken once you pass your prelim

TAs and RAs should always register for at least 8 credit hours in the Fall and Spring terms to be full-time students! Fellowship students should register for 12 credit hours while on fellowship.
First Few Semesters at UIUC

Teaching

- This is important training, giving you an opportunity to make an impression on professors you might do research with, so take it seriously!

- A chance to learn how to be a good teacher: we have many award-winning TAs! This looks good on your resume, especially if you’re applying for faculty positions!
First Few Semesters at UIUC

The Qual:

- Qual exam has been tentatively rescheduled for Tuesday, Jan. 19 and Wednesday, Jan. 20. Time and location to be determined.

- Qual FAQ and problems can be found here: http://physics.illinois.edu/academics/graduates/qual-faq

- I’ll organize a Qual Information Session sometime this fall for those planning to take the qual in Spring 2021.
Qual Exam Info on the Blog
https://physics.illinois.edu/academics/graduates/qualifying-examination

Qual exam information and problems can be accessed here.
Research !!

- Picking an advisor (there are many available)
  - Physics 596 Research Talks in Fall
  - Research opening advertisements on Grad Student Blog
  - Make your own one-on-one arrangements!
  - Start looking early, attend seminars, talk to faculty!

<table>
<thead>
<tr>
<th>Research Area</th>
<th>Experimentalists</th>
<th>Theorists</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condensed Matter Physics</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>AMO/Quantum Information</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Biological Physics</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Astrophysics/Gravitation/Cosmology</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Cross-Cutting Research</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>High Energy Physics</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Medium Energy (Nuclear) Physics</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Physics Education Research</td>
<td></td>
<td>3</td>
</tr>
</tbody>
</table>
• Research opportunities in the department, finding advisors, etc.
• Instruction/practice in scientific writing and presentation
• Scientific publishing process, using on-line resources, etc., etc.

https://courses.physics.illinois.edu/phys596/fa2020/

Make sure you register for this course! It is required!
Interested in applying for a grad fellowship?

- 1st year and (most) 2nd year grad students are eligible
- Celia and I will hold a virtual NSF Fellowship Workshop, 6-8 pm on Wednesday, Sept. 16
- We will hold an NSF Fellowship pre-competition in October
- Stay tuned to the grad blog for more details!
Years 2-N: Focus on Research

- You’ll join a group
  - By no later than the summer after your first year
  - Often supported by an RA but otherwise you can still be a TA
  - Trial research period, and you can still make changes

- Want to attend a conference/workshop not supported by your advisor or do you need supplemental funds for emergencies?
  - Physics Grad Travel Award program
Grad Travel Award Program

TRAVEL FUND APPLICATION

PURPOSE

The purpose of the Department of Physics Graduate Student Travel Award Fund is to provide opportunities for graduate students to participate (remotely or in person) special conferences or workshops, to participate in professional development activities that are not funded by their advisers' research grants, or to supplement student funding for unanticipated medical, financial, or educational expenses. Awards will typically be limited to a maximum of $600.

APPLICATION SCHEDULE

The 2020-2021 Physics Grad Travel Award program will be divided into three time periods. Applications should be submitted by the following dates if possible:

- **September 1, 2020**, for September 1, 2020 – January 31, 2021 conference participation or supplementary funds
- **February 1, 2021**, for February 1 – May 31, 2021 conference participation or supplementary funds
- **May 1, 2021**, for June 1 – August 31, 2021 conference participation or supplementary funds

Applications may be accepted for reimbursements, and it is preferred that applications be received at least 30 days before funds are needed. Questions about deadlines and submissions should be directed to Professor Lance Cooper (slcoop@illinois.edu), associate head for graduate programs.

APPLICATION EVALUATION PROCESS

Applications will be reviewed by the associate head for graduate programs, and final decisions will be made by the associate head for graduate programs. Applicants will be informed of the final decisions. All decisions of the associate head are final.

APPLICATION REVIEW CRITERIA

Review criteria include:

1. An assessment of how the proposed conference participation will contribute to the student's professional development or a brief explanation describing why supplementary funds are needed.
2. The student's past history of travel support by the department (for conference participation awards).
3. Time remaining to PhD degree (for conference participation awards).
The Prelim

- 15 page paper, oral presentation
- “Proposal” for your thesis research
- Typically in 3\textsuperscript{rd} or 4\textsuperscript{th} year
Thesis defense

- Your own personal “book”: you’re the world’s expert!
- Time to Ph.D. ~ 6.5 years on average (depends on field)
Life After UIUC Grad School

- Universities (post docs and faculty)
- Government Research Laboratories
  - Argonne, Fermilab, Jefferson Lab, NISTs, LANL, Livermore, LBL, Sandia, NRL, …
- Industry
  - Intel, IBM, AT&T, HP, Microsoft, AMD, Shell, Kodak, and hosts of high-tech start-ups
- Computing (hardware and software)
- Wall Street
- Management consulting
- Science policy
- Science writing and publishing
We maintain a database of our past ~527 PhD alumni for the past 15 years.
Physics Careers Seminars will be virtual through Fall 2020 (at least). I’ll circulate a Zoom link to the grad students prior to the seminar. Current schedule (in progress):

<table>
<thead>
<tr>
<th>EVENT TITLE</th>
<th>SPEAKER</th>
<th>DATE/TIME</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physics Careers Seminar</td>
<td>Dr. Mohammed Sheikh, Deep Learning Researcher, Standard Cognition</td>
<td>9/4/2020 12 p.m.</td>
<td>Virtual Event</td>
</tr>
<tr>
<td>Physics Careers Seminar</td>
<td>Dr. Gregg Franklin, MD, PhD, New Mexico Cancer Center</td>
<td>9/25/2020 12 p.m.</td>
<td>Virtual Event</td>
</tr>
<tr>
<td>Physics Careers Seminar</td>
<td>Dr. David Hamilton, Low Yield Analysis Engineer, Intel Corporation</td>
<td>10/9/2020 12 p.m.</td>
<td>Virtual Event</td>
</tr>
<tr>
<td>Physics Careers Seminar</td>
<td>Dr. Mindy Rak, Physics and Engineering Lab Supervisor, Wheaton College</td>
<td>10/23/2020 12 p.m.</td>
<td>Virtual Event</td>
</tr>
</tbody>
</table>
All departmental seminars should be online and videotaped this fall:

### PHYSICS SEMINARS

**MONDAYS**  
Institute for Condensed Matter Theory Seminar  
12:00 p.m.  
Schedule

Medium & High Energy Physics Seminar  
1:00 p.m.  
Schedule

Theoretical Biophysics Seminar  
3:00 p.m.  
Schedule

**TUESDAYS**  
Astronomy Colloquium and Seminars  
3:45 p.m.  
Schedule

**WEDNESDAYS**  
IQUIST Seminar  
1:00 p.m.  
Schedule

Astrophysics, Gravitation, and Cosmology Seminar  
12:00 p.m.  
Schedule

Physics Colloquium  
4:00 p.m.  
Schedule

**THURSDAYS**  
Mathematical and Theoretical Physics Seminar  
1:00 p.m.  
Schedule

**FRIDAYS**  
High Energy Phenomenology Seminar  
12:00 p.m.  
Schedule

Condensed Matter Physics Seminar  
1:00 p.m.  
Schedule

Biological Physics Seminar  
2:00 p.m.  
Schedule

[https://physics.illinois.edu/calendar/seminar](https://physics.illinois.edu/calendar/seminar)
Teaching, Taking Classes, and Researching During COVID-19

Requirements Due To COVID-19:

**COVID-19 Testing**

COVID-19 testing is required for ALL faculty, staff, and students who are on-campus for any length of time. Twice per week testing required for all faculty, staff, and students who participate in on-campus activities. Anyone visiting campus (including faculty, staff, students) occasionally are required to be tested and have test results no more than 4 days prior to entering any university facility.

Campus testing locations are listed here: [https://covid19.illinois.edu/on-campus-testing-locations/](https://covid19.illinois.edu/on-campus-testing-locations/)

COVID-19 Resources here and in Section 18 of Grad Handbook
Teaching, Taking Classes, and Researching During COVID-19

Requirements Due To COVID-19:

**Face Masks**
Face coverings/masks are **required** for everyone in university facilities, unless they are alone in a private space. Face coverings/masks are also required outside of facilities if social distancing is not possible.

More information about face masks can be found here: [https://covid19.illinois.edu/face-coverings/](https://covid19.illinois.edu/face-coverings/)

**Testing Positive and Quarantining**
All faculty, staff, and students who test positive will be required to isolate and quarantine per guidance by the Champaign-Urbana Public Health District.

More information about quarantining can be found here: [https://covid19.illinois.edu/quarantine/](https://covid19.illinois.edu/quarantine/)

**Mandatory Online COVID-19 Training**
All faculty, staff, and students are required to complete the Division of Research Safety COVID-19 online training. This must be completed even if you are working 100% remotely. Deadline for completion is August 24, 2020. The online training can be found here: [https://covidtraining.research.illinois.edu/](https://covidtraining.research.illinois.edu/)

**Mandatory COVID-19 Return to Campus Info Form**
All employees (faculty, staff, TAs, and RAs) must complete this return to campus information form: [https://forms.gle/kPdeiSxpgzHmuYqaA](https://forms.gle/kPdeiSxpgzHmuYqaA)
Teaching, Taking Classes, and Researching During COVID-19

Various COVID-19 Related Information, Health, and Immigration Resources:

University COVID-19 Website
The University’s COVID-19 website with information and resources can be found here: https://covid19.illinois.edu/

Graduate College COVID-19 Updates
The Graduate College maintains a COVID-19 website with information and updates of particular interest to graduate students: https://grad.illinois.edu/covid-19/updates

International Student & Scholar Services (ISSS) COVID-19 Updates
International Student & Scholar Services (ISSS) maintains a COVID-19 website with information and updates of particular interest to international graduate students: https://isss.illinois.edu/updates/coronavirus.html

COVID-19 Health Support Resources
The campus maintains a list of virtual counseling and medical support resources available to students: https://studentaffairs.illinois.edu/node/11962
Teaching, Taking Classes, and Researching During COVID-19

Other COVID-19 Instructional and Employment Information:

**Taking Classes Remotely**
If you’re planning to take classes on-line, you should register for the online (ONL) sections of courses that are being taught in a hybrid mode. International students on F1 visas should register for the in-person section (LEC) of Phys 596, because you’re required to take at least one in-person class (you can still attend online if you want).

**In Absentia Registration**
If you’re taking classes remotely more than 50 miles from campus, you can reduce your fees by registering *in absentia*. Note that you will not be covered by student health insurance if you register *in absentia*. International students who register off campus will be automatically given *in absentia* status, so you don’t need to apply. However, if you want student health insurance, you’ll need to let us or the Grad College know so they can cancel your *in absentia* status. You can find the in absentia form here: https://grad.illinois.edu/sites/default/files/pdfs/in_absentia.pdf

Guidance for Employees Working In and Away From University Facilities
Illinois Human Resources has created guidance for employees working within campus facilities and also for employees working remotely.

Classroom Management Guide
Instructors are encouraged to read through the COVID-19 Classroom Management Guide for further information regarding classroom management.
Teaching, Taking Classes, and Researching During COVID-19

Physics Department Specific COVID-19 issues:

Offices
We have limited office space, so those needing office space will have to share the space and occupy the office one person at a time. We’ll circulate a poll soon to see (i) if you want office space and, if so, (ii) if you’d prefer to have assigned specific days each week or specific hours each day to occupy the office.

Instructional Resources
The department has a very limited number of loaner instructional resources (e.g., webcams, tablets, etc.) for teaching this fall. We will also circulate a poll to try to determine TA instructional needs. There is also a campus Technology Loan Program for hardware and software loans: https://answers.uillinois.edu/illinois/99680
Advice: Get to know your interesting classmates!

Portrait of the diverse Fall 2020 Illinois Physics Graduate Class:

- 78 students in the Fall 2020 grad class enrolling this fall (6 more deferring until Spring or Fall 2021)
- 59 Male, 18 Female, 1 Non-Binary
- 27 International Students, 51 Domestic Students
- Citizenship: US (51), China (10), India (6), Taiwan (2), United Kingdom (2), Australia, Austria, Hong Kong, Mexico, Nepal, Pakistan, Peru, Thailand
- 61 on campus, 14 off campus outside US, 3 off campus in US
**Advice:** Keep socially active!

Getting involved with grad social groups helps relieve the stress of grad school. Many of these groups will continue meeting virtually.

- Physics Grad Student Association
- Illinois-GPS: Grad/undergrad mentoring group
- Women in Physics
- Grad Peer Mentoring: Grad mentoring of 1st-year grad students
- Diversity Committee
Advice: Stay safe!

Our campus and community is reasonably safe, but it’s important to be aware of your surroundings, particularly at night.
Advice: Know who to contact if you need help!

Contact me and/or Wendy if you don’t know who to ask!

# 24-Hour Emergency Numbers

<table>
<thead>
<tr>
<th>Life-threatening fire, police, or medical emergency</th>
<th>9-11 (on-campus) or 911 (off-campus)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emergency Dean (available 24/7 to assist students or their families in crisis)</td>
<td>333-2050</td>
</tr>
<tr>
<td>Domestic Violence Hotline (A Woman’s Place)</td>
<td>384-4300</td>
</tr>
<tr>
<td>Crisis Line (24-hour suicide prevention and crisis hotline)</td>
<td>244-7911 or 359-4141</td>
</tr>
<tr>
<td>Faculty/Staff Assistance Program</td>
<td>244-5312</td>
</tr>
<tr>
<td>National Capital Poison Center</td>
<td>1-(800)-222-1222</td>
</tr>
</tbody>
</table>

# Non-Emergency Numbers

<table>
<thead>
<tr>
<th>Fire Departments</th>
<th>Police Departments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Champaign</td>
<td>University of Illinois</td>
</tr>
<tr>
<td>Urbana</td>
<td>Champaign</td>
</tr>
<tr>
<td>Savoy</td>
<td>Urbana</td>
</tr>
<tr>
<td>Champaign County Sheriff</td>
<td>Savoy</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hospitals and Medical Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carle Hospital Emergency Room</td>
</tr>
<tr>
<td>Provena Covenant Medical Center Emergency Room</td>
</tr>
<tr>
<td>McKinley Health Services</td>
</tr>
</tbody>
</table>

# Current Grad Info

- Physics Grad Student Handbook
- Curriculum Requirements
- Prelim Exam Info
- Thesis Info
- MS Degree Requirements
- CSE Graduate Concentration
- Useful Non-Physics Courses
- PHYS 500
- PGSA
- Illinois GPS
- Qual Exam Info
- New Student Info
- Ethics Resources
- Responsible Conduct of Research
- Research Safety Training/Info
- Grad Expertise Database
- Grad Travel Award
- Grad Student Evaluations
- Grad College Calendar
- COE Grad Handbook
- Graduate Student Mentoring Guidelines
- International Student Resources
- Physics Information Resources
- Useful Forms
- Health/Safety Resources
- Counseling/Mental Health Resources
- MRL Safety Brochure
- Important Physics Dates
- Diversity Resources
- Important Phone Numbers
- COVID-19 Resources
Advice: Get to know and enjoy the community!

Many parks, restaurants, and facilities are open, but stay safe and socially distanced!
Cool places in the surrounding area

Lake of the Woods (~15 min)

Turkey Run (Indiana, ~1 hr)

Kickapoo State Park (~30 min)

Allerton Park (~20 min)
Cool places in the surrounding area

St. Louis (~3 hrs)

Indianapolis (~1.5 hrs)

Chicago (~2.5 hrs)
Upcoming Departmental Events

- Virtual Micro-aggression Workshop
  - Wednesday, Aug. 19, 11:00 am – 12:30 pm

**Title:** Creating an Equitable and Inclusive Cohort

**Abstract:** Join Ross Wantland, Director of Curriculum Development and Education in the Office of the Vice Chancellor for Diversity, Equity, & Inclusion, for a conversation about strategies for confronting bias and promoting inclusion as Physics graduate students. This program is designed to be as interactive as Zoom allows, so please plan accordingly (i.e., cameras on, able to type into chat, etc.).

I’ll send out a Zoom link and the workshop will be recorded for those participating off-campus.

Required workshop for 1st-year physics grad students!
Final Piece of Advice

- And always feel free to e-mail or meet with me if you have problems or questions!