Orientation for New Grad Students

- **Introductions and General Information** (~60 minutes)

  Lance Cooper/Mel Schweighart/Denise Donnelly…..Welcome
  Jerry Cook……Information on Facilities/Keys/Inventory
  Elaine Schulte……Information for Graduate Teaching Assistants
  Celia Elliott……..Information on Graduate Fellowships
  Mary Schlembach……Information on Library
  Nick LaRacuente/Tanya Perlova……Physics Grad Student Association
  Garrett Vanacore/Bill Rose....Graduate Employees Organization

- **Break** (10 minutes)

- **Grad Program Information** (~30 minutes)

  Lance Cooper….Overview of the Illinois Physics Grad Program
  Rebecca Wiltfong……Information on My Physics/Website

- **Welcome Luncheon:** ~12:00 noon, Interaction Room, Loomis Lab

- **TA Training Session:** 2:00 – 5:00 p.m. (Elaine Schulte and others)

New Grad Student Orientation

- What you should have already done: New Student Checklist
- What you will be doing: Life as a UIUC Physics Grad Student
- What else you can do: Things to Do Outside of Physics

New Grad Student Checklist

- By now, you should have done the following:
  - ☑ Filled out your paperwork with Mel Schweighart
  - ☑ Met with me for course and teaching assistantship advising
  - ☑ Registered for classes on-line!

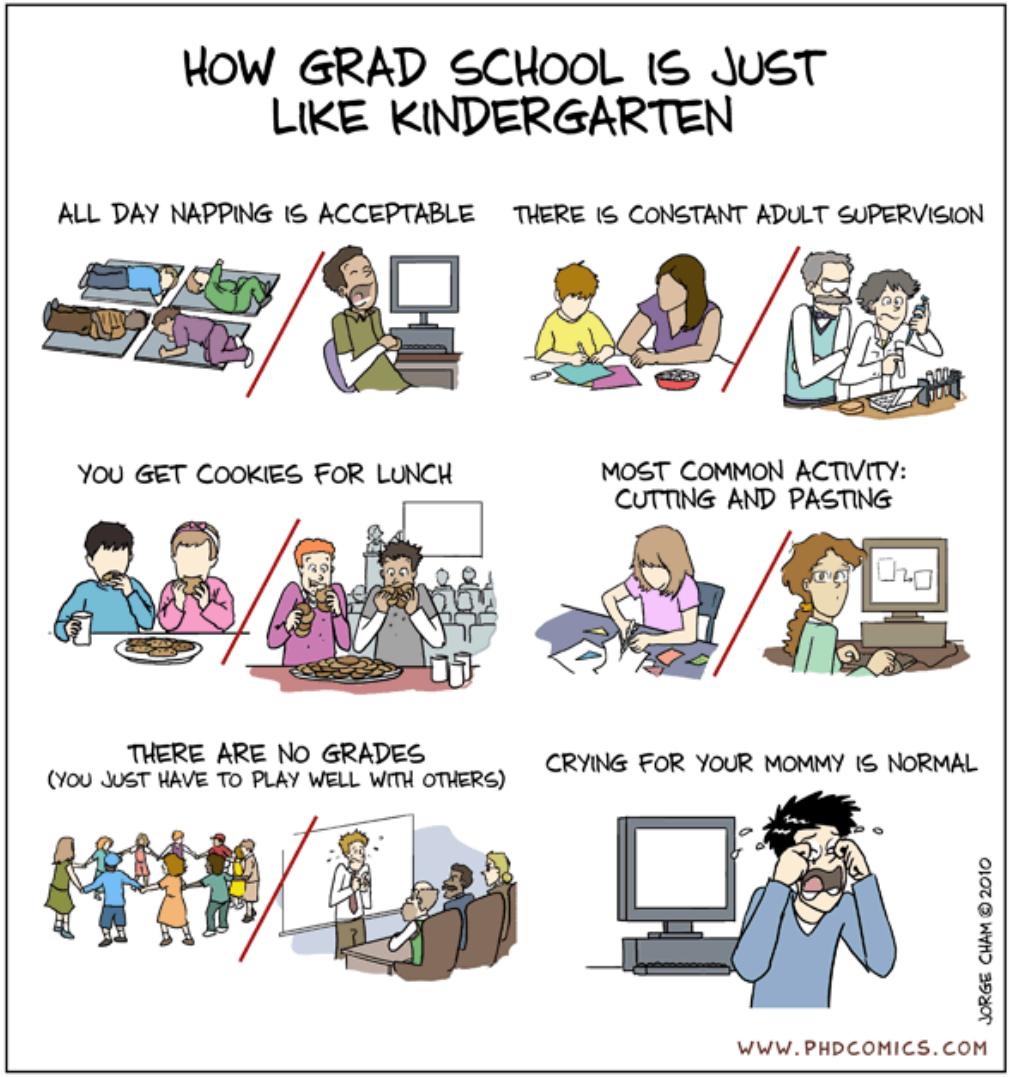
    -- You must maintain at least 8 (12) credit hours to be a full-time student and keep an assistantship (fellowship)
  - ☑ Registered for the qualifying exam (if applicable)
  - ☑ Received and accepted your teaching/research assistantship

    -- You should have received your assignments yesterday!

    -- Sign up for mandatory campus TA training next week!

If you haven't done all of these yet, please see me today!

Life as a UIUC Physics Grad Student



First Year at UIUC

- There are few course requirements

Pick 2 !

  - Biophysics
  - Nuclear and Particle
  - Astrophysics
  - Quantum Optics & Information or Atomic Physics
  - Condensed Matter or Emergent States of Matter

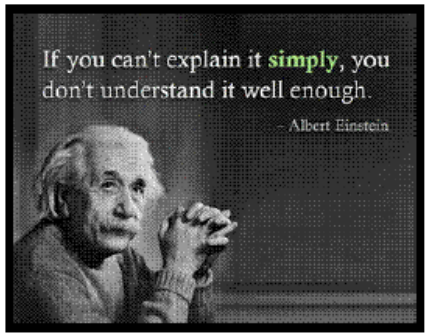
- But it's likely you will start with
  - Quantum Mechanics I and II (580,581)
  - Mathematical Methods 1 and 2 (508, 509)
  - Electricity and Magnetism (505), Statistical Mechanics (504)
  - Undergraduate Quantum 2 (487), E&M 2 (436), Classical Mech 2 (326), Stat Mech (427)

- And everyone takes 596 (Physics Orientation)

Agenda for Phys 596
(Friday, 11:00-12:50, Rm. 144):

- Research opportunities in the department, finding advisors, etc.
- Instruction/practice in scientific writing and presentation
- Scientific publishing process, using on-line resources, etc., etc.

http://courses.physics.illinois.edu/phys596/fa2014/



Physics 596

Graduate Physics Orientation
Fall 2014

The whole of science is nothing more than a refinement of everyday thinking. Albert Einstein, Physics and Reality, 1936

Home | Course Info | Syllabus | Assignments | Student Work | Resources

Course Details

Lecture/Discussion 11:00 a.m. - 12:50 p.m., Fridays
144 Loomis Laboratory of Physics

Instructors

S. Lance Cooper
218 MRL (Research Office), 333-2589, email
227B Loomis (Departmental Office), 333-8702

Celia Elliott
215 Loomis, 244-7725, email

Announcements

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http://courses.physics.illinois.edu/phys596/fa2014/

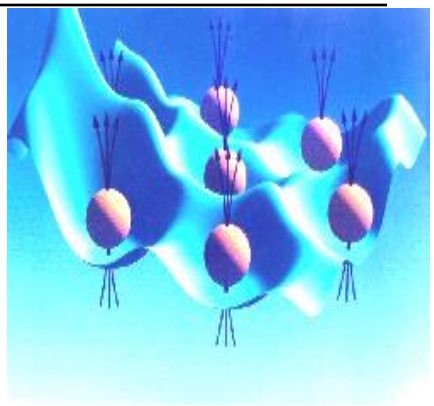
Make sure you register for this course! It is required!

Physics 596 - Course Syllabus - Fall 2014

(Syllabus is subject to change!)

Week	Date	Topics	Lectures	Assignments	Reading
1	Aug 29	Introduction and course expectations How to find an advisor Creating/giving a journal club presentation	slides slides slides	Major Group Assignment Create and present a group Journal Club PowerPoint talk + individual referee reports	
2	Sep 5	Research in Experimental Intermediate Energy Physics - Prof. Anne Sickles Research in Computational Biological Physics - Prof. Alek Aksimentiev Tips for reading a scientific paper Publication process; How to write a referee report	slides slides		
3	Sep 12	Research in Experimental Biological Physics - Prof. Paul Selvin How to use on-line scientific resources On-line research with SCOPUS	slides slides	mini-Assignment #1 On-line resource activities	Resource Activities Prof. Casey Miller's (U. South Florida) advice on using scientific resources
4	Sep 19	Research in Experimental Atomic, Molecular, and Optical Physics - Prof. Bryce Gadway Research in Experimental Condensed Matter Physics - Prof. Peter Abbamonte Research in Experimental Intermediate Energy Physics - Prof. Liang Yang			
5	Sep 26	Research in Experimental Condensed Matter Physics - Prof. Vidya Madhavan How to write a scientific abstract	slides	mini-Assignment #2 Write an abstract for selected paper	Abstract Papers

First Few Semesters at UIUC



- Advanced courses specialize
  - Solid State Physics II
  - Quantum Field Theory I and II
  - Liquid Helium and Superconductivity
  - Particle Physics I and II
  - *Special topics* (Phys 598) courses – one benefit of a big department!!

A few recent Phys 598 offerings:

Computational Physics and Astronomy *Charles Gammie*
Nonequilibrium Statistical Mechanics *Klaus Schulten*
Physics in Two Dimensions *Tony Leggett*
Ads/QFT Correspondence *Rob Leigh*
Communicating Physics Research *Lance Cooper*
Topological Phases in Condensed Matter *Eduardo Fradkin*

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 T.A.'s! This looks good on your resume, especially if you're applying for faculty positions!

- The Qual:

  - Start of 2nd year. FAQ:

https://my.physics.illinois.edu/info/index.asp?id=6

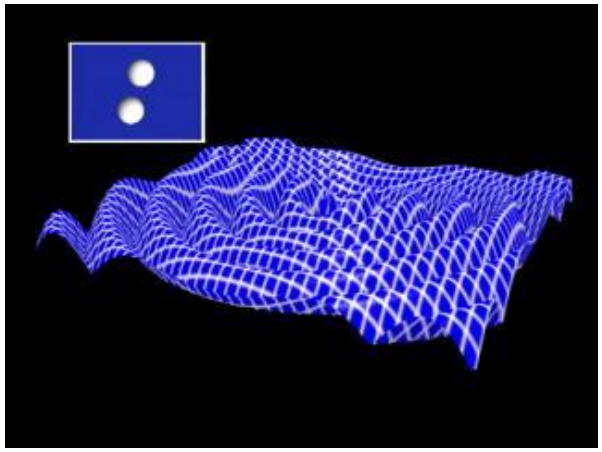
  - Archive of Problems:

https://my.physics.illinois.edu/info/index.asp?id=7

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!

- There are a diverse range of research opportunities in Physics:



Research at Illinois Physics

Research Programs--- Department of Physics

As a top-10 ranked department, our philosophy is to maintain strength in all major disciplines while growing targeted areas and promoting interdisciplinary programs

Condensed Matter Physics
10 experimentalists +1 new faculty
11.5 theorists

High Energy Physics
8 experimentalists +2 new
4.5 theorists

Atomic-Molecular-Optical (AMO) Physics
2 experimentalists + 2 new faculty
0 theorists

Intermediate Energy (Nuclear) Physics
5 experimentalists + 1 new
1 theorist

Biological Physics
6 experimentalists
4 theorists

Astrophysics/Cosmology
1 experimentalist
4 theorists

Cross-Cutting Research
3 experimentalists

Physics Education Research
3 educators

Even More Research !!

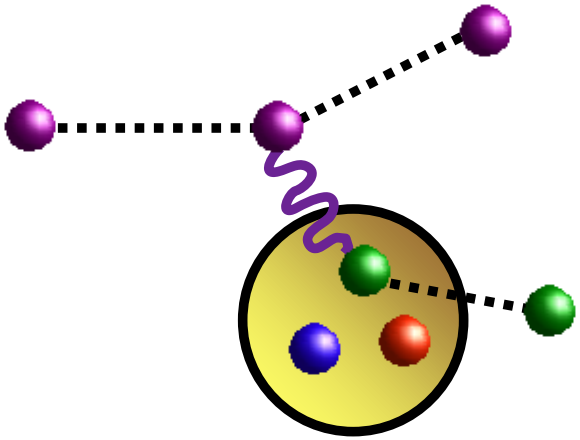
- Additional research opportunities elsewhere
  - Astronomy
  - Electrical and Computer Engineering
  - Materials Science and Engineering
  - Biophysics (not only within our dept.)
  - Mathematics
  - Computer science

  About 10-15% of our grad students are here

- Other stellar units & program on campus
  - Seitz Materials Research Laboratory
  - NCSA
  - Beckman Institute for Advanced Science & Technology
  - Center for Theoretical Astrophysics
  - Theoretical Biophysics Group

Years 2-N: Research in Full Throttle

- You're in a group
  - Often supported by an R.A. (some teach)
- The Prelim
  - 15 page paper, oral presentation
  - "Plan" of research
  - Typically in 3rd year



- Thesis defense
  - Your own personal "book": you're the world's expert!
  - Time to Ph.D. ~ 6 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

http://physics.illinois.edu/grad/posts.asp

How to keep informed?

Physics Grad Student Blog

Frequently updated information about:

- Academic deadlines and rules
- Research openings
- Fellowship opportunities
- Postdoc and job opportunities

Important Grad Student Info on curriculum, qual, prelim, MS degree, thesis, etc., etc.

Graduate Student Blog

Welcome to the Physics Illinois Grad Student Blog, which will provide information from the Grad Programs Office about academic deadlines, Grad College posts, fellowship and job opportunities, and other information you may find useful. Bookmark this site and return often to keep informed.

Filter blog posts: View latest 15 posts

8/14/2013 — *Lance Cooper*
Tenure-Track Faculty Position Openings
Information about various tenure-track faculty position openings announced in August.

8/14/2013 — *Lance Cooper*
Lawrence Berkeley National Laboratory Chamberlain Fellowship
The Physics Division at Lawrence Berkeley National Laboratory (LBNL) announces the competition for the 2014 Owen Chamberlain Fellowships in experimental particle physics and cosmology.

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The Argonne Named Postdoctoral Fellowship Program
Argonne National Laboratory is accepting applications for the 2014 Named Postdoctoral Fellowship.

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Two Tenure Track Physics Faculty Openings at Bard College
Bard College invites applications for two tenure-track positions in physics in its Division of Science, Mathematics, and Computing beginning in the fall semester.

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Science Assistant Employment Opportunity at the National Science Foundation
The National Science Foundation Division of Materials Research (DMR) announces a nationwide search for a Bachelors- or Masters-level materials scientist to serve as Science Assistant.

8/4/2013 — *Lance Cooper*
Visiting Assistant Professor Position in Physics at Amherst College
Amherst College's Department of Physics invites applications for a full-time position at the rank of Visiting Assistant Professor.

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The deadline to make Fall 2013 TA/RA appointments is fast approaching (Aug. 9).

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- PHYS 596
- PGSA
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- New Student Info
- Ethics Training/Info
- Safety Training/Info
- Grad Research Openings
- Grad Travel Award
- Grad Student Evaluations
- Physics Job Postings
- *Physics Today* Job Postings
- Useful Forms
- Useful Links
- Important Phone Numbers

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- Demographic Info
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- Physics Careers Archive
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- Scientific Poster Tips
- 1st Year Orientation
- Grad School Wrkshp

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Important Grad Student Info on workshops: Watch for prelim/final and NSF Fellowship workshops in September!

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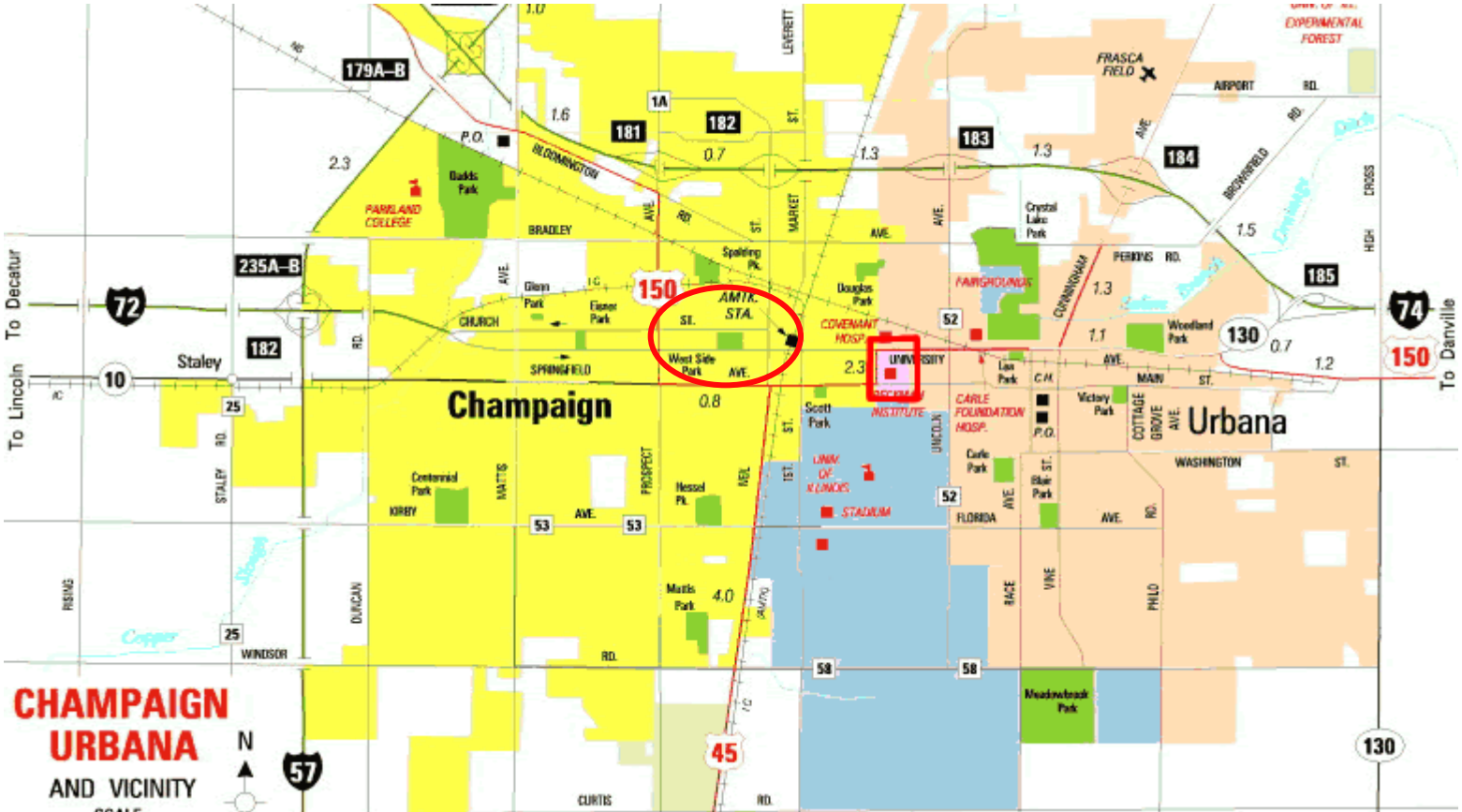
Upcoming Events

- Taste of Champaign, Westside Park
  - Aug. 15-16, Westside Park

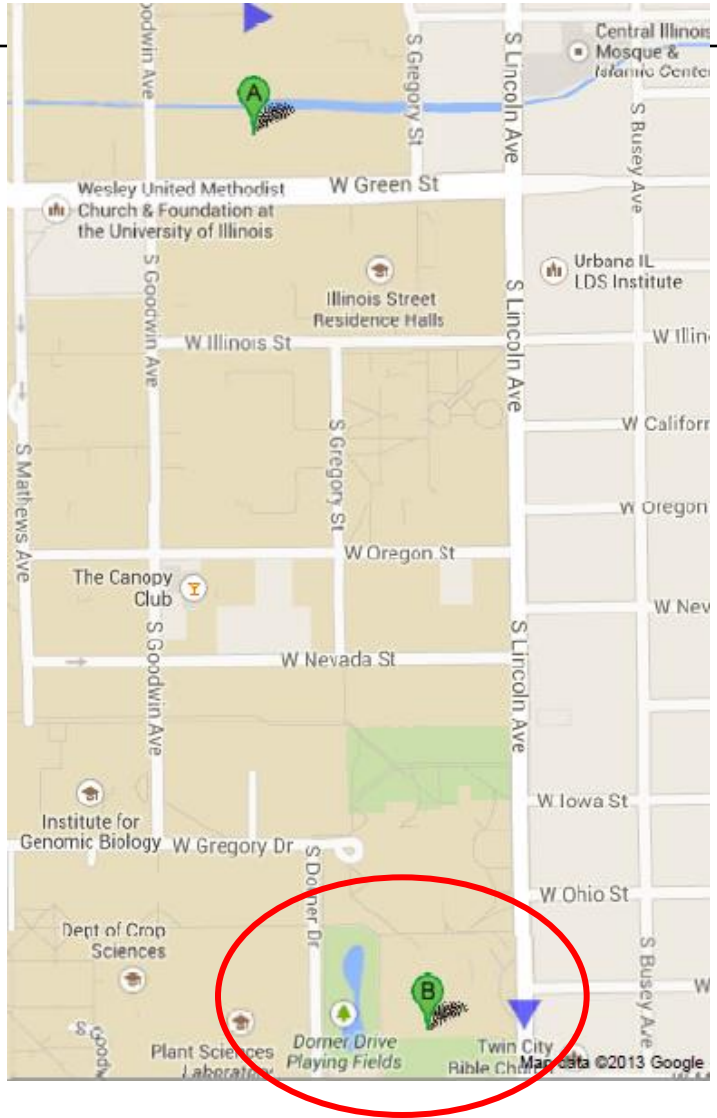


Upcoming Events

- Urbana Sweet Corn Festival
  - Aug. 22 (Friday night) and Aug 23 (Saturday, all day). For schedule, location, see: http://www.urbanabusiness.com/events/urbana-sweetcorn-festival/

Upcoming Events

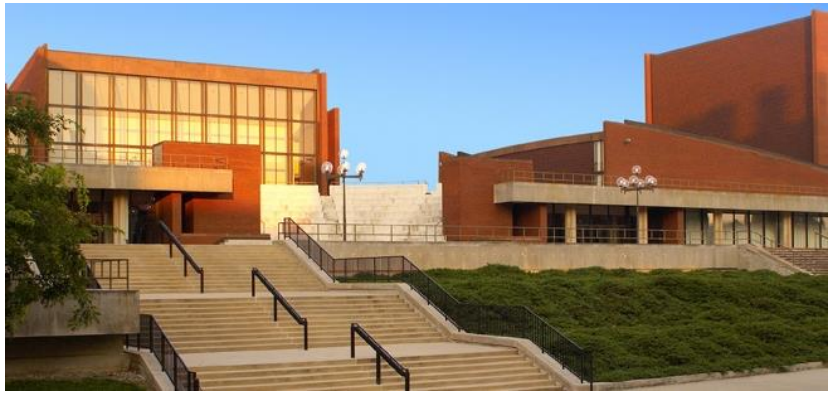
- Departmental Picnic
  - Saturday, September 6, 4-7 PM, Illini Grove



Local Things To Do

http://www.visitchampaigncounty.org/

Cool places in town



Krannert Center for the Performing Arts

Virginia Theater

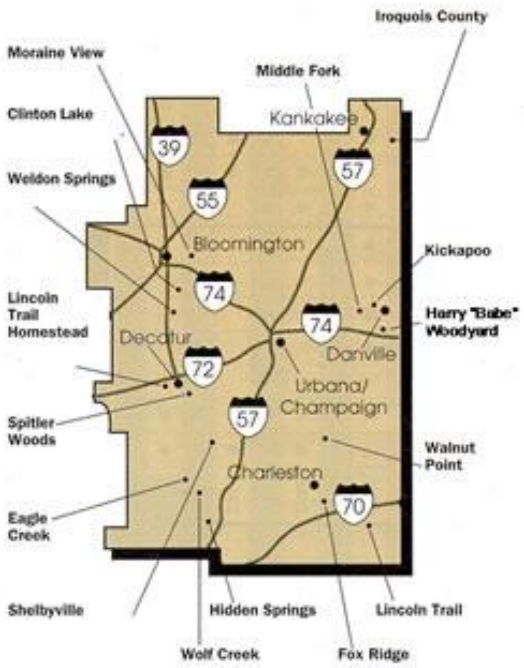
Westside and other parks

Downtown Champaign

Cool places in the surrounding area

Lake of the Woods (~15 min)

Kickapoo State Park (~30 min)



Turkey Run (Indiana, ~1 hr)

Allerton Park (~20 min)

Cool places in the surrounding area

Cool cities you can visit:

Final Pieces of Advice

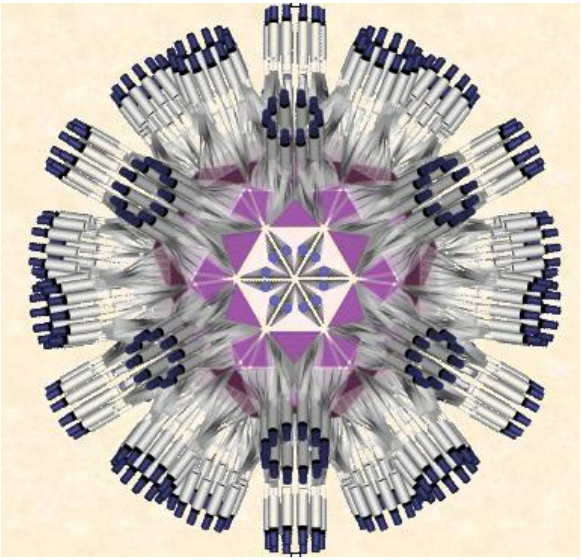
- Enjoy the ride and take advantage of all the opportunities of this place...This can be one of the best times of your life!

Final Pieces of Advice

- Get to know your classmates…you'll form some of your closest long-term relationships in grad school!

Final Pieces of Advice

- Work hard, but keep socially active…staying involved in PGSA and other social activities helps relieve the stress of grad school

Final Pieces of Advice

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