UIC Mathematical Computing Lab
summer workshop in graph theory

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- **Course webpage:** `homepages.math.uic.edu/~scole3/summer2016`. I'll post all course materials here, including this syllabus.

- **Location:** All classes will take place in the MCL, located in SEO 709.

- **Time:** 11:00-3:00 Mondays, Wednesdays, and Thursdays June 20-July 15 (July 4 off)

- **Format:** The workshop will be divided into *lecture* and *lab* portions. In lecture I will teach you the relevant math for the workshop, and in lab you will write programs related to what we're doing in lecture.

  Class time will be divided roughly as follows:

	Monday	**Wednesday**	**Thursday**
11:00	Lecture	Lecture	Lecture
12:00	Lunch	Lunch	Lunch
1:00	Lab	Lab	Office hours
2:00			

- **Office hours/optional lab time:** I will be in the lab every Thursday from 1:00-3:00. You are not required to attend during this time, but I will be available to to answer any questions you have, help with assignments, etc. I am also happy to answer questions by email or make appointments to meet with you individually.

- **Attendance:** required in *all* lecture and lab sessions, except in cases of emergency.

- **Homework:** I will sometimes assign math or programming exercises for you to work on at home. I will not collect them, but I encourage you to take a look at them anyway because they will give you a deeper understanding of the material. *Office hours* are a great time to work on homework!

- **Projects:** You will spend the last two weeks of the workshop working on projects. Each project will consist of a math and a programming portion. You will work in pairs and present your project at the end of the workshop. More on that later.

Computer access

Accounts have been created for you on all of the lab machines as well as the remote server pieri.

> **Username:** *firstInitial.lastName*
> **Password:** provided on inside of your folder

There is no syncing between your accounts on these machines.

1. If you save a file on one machine it won't magically be available on the others.

2. If you change your password on one machine, it won't magically be changed on the others.

   I recommend not changing your password. If you absolutely must, make sure you do it on *all 6* lab machines + pieri. You can do so by opening a terminal and using the command `passwd`.

Accessing pieri

You can access pieri remotely from any machine (including your personal computer) using SSH. It uses the nonstandard port 1980, so the command would look like

    ssh -p 1980 *username*@pieri.math.uic.edu

If you don't know what SSH is, don't worry! I'll show you how to use it.

Personal computers

Finally, you are welcome to bring your personal computer and use that if you prefer. All you will need is Python. If you have Windows it is beyond easy to install, and if you have a Mac, Linux, or pretty much anything else you already have it!

Tentative Schedule

Week 1

- General math background: sets, matrices, basic counting and probability

- Basic graph theory

- Intro to Python

Week 2

- Intro to random graphs

- Threshold functions

- Using NetworkX

- Programming exercises involving random graphs

Week 3

- Monday off for July 4

- Start to work on projects.

Week 4

- Continue to work on projects

- Presentations