

A BRIEF INTRODUCTION TO UCSC COMPUTING

Welcome! Greetings, first-year graduate students! Before you stretches a world of infinite possibilities, provided those possibilities have something to do with astronomical research conducted at UC-Santa Cruz. You will be aided on your quest for knowledge by your advisor, by your colleagues, and not least, by your trusty computer.

A remarkable amount of astronomy involves staring at screens. In your first two years in the department, you will be required to use a computer for both research and homework assignments. There are two different sets of computing resources available in our department: the basic “Astro network,” maintained by the university and provided free of charge, and the NICS network, operated by the group that supports the UC-Observatories department. The NICS network requires a subscription fee, paid by your advisor, and provides additional services. You should have transitioned to this network by the time you start your thesis.

Astro Network. You will probably be on the Astro network on day one. In the past this network has been based around several “thin clients,” lightweight desktop devices that connected to a shared environment on a central server. At the moment the department is in the process of transitioning to a new network model, and you will be the second class to try out the new hardware. Our network consists of several Mac Minis (specs available on request) connected to a central server, hyperion. Each new graduate student will be set up with one of these Minis. These machines are equipped with everything you’ll need for basic computer tasks, homework, and beginning your research. You will have the ability to install and remove programs from your machines, but this also means you will have the ability to mess them up. Be careful.

You’ll be supplied with a temporary password for both your own workstation and the server. Please change this immediately. Make sure that your passwords on the workstation and the server are the same, or you could have problems connecting to the server. To change your password from the command line on the server, type `passwd`.

If you have a heavy calculation that involves a lot of processing power and/or memory, or you want to run programs remotely, then you should run them on hyperion. Each of you will have an account on hyperion with a shared directory that connects to your Mini. You can’t connect to your Mini from outside UCSC, but you can connect to hyperion via ssh. Whatever programs or pipelines you need should be set up on hyperion. If they aren’t, email one of the two addresses listed under “Tech Support” at the end of this document, and we’ll get things set up for you.

There are a few printers set up on the Astro network. Your machine should be able to see them. Remember that some of the printers in the department are actually on the NICS network, and you won’t be able to print to them from an Astro network machine.

Remote Access. The Astro network server is configured for ssh on the usual port. For a basic connection, type `ssh [username]@hyperion.ucsc.edu` at a command line. For a graphical connection (so you can see and manipulate windows) use the command `ssh -Y [username]@hyperion.ucsc.edu`. If you are running Mac OS X, you will need to start up X11 (installed by default in your Applications/Utilities folder) and type this line at

the window that appears. If you are running Linux just type this command at any terminal. If you are running Windows, you will need to install an X windows environment such as Xming before you can use this command.

NICS Network. At the end of your second year you'll be required to transition over to your own computer. By then you should have found your thesis advisor and come to some arrangement about how you will be provided with a computer, whether it be purchased for you or handed down from another grad student. We'll help you out with moving your stuff over to your new machine. Your advisor should also get you an account on the NICS network. NICS provides several services such as high-bandwidth networking, backups, storage space, a ucolick.org email address, and expert tech support.

Your Website. Building your own website is a good idea. As you start to build a career and introduce yourself to more people, they're going to try to Google you. When they do, you want your website to come up first and full of information about how great you are. You can get free website templates pretty much anywhere on the internet; Google around, drop some pictures and text in the right spots, and you should be good to go. If you are on the Astro network, you should use the campus-wide webspace to host your site. Use ssh to connect to `unix.ic.ucsc.edu` with the same username and password as your email. Build your website in the directory `public_html` and view it at `http://people.ucsc.edu/~username`. If you're on the NICS network, NICS provides webspace for you at `http://www.ucolick.org/~username`. Just connect to the NICS servers at `ssh.ucolick.org` and build your website in the `public_html` directory.

Having Your Own Computer. Even though the department provides you with a machine for work, it's a good idea to have your own computer as well. Most of you already have either a desktop or a laptop computer. A laptop can be very useful for giving talks, both here in the department and away at conferences. Windows and Mac OS are both fine for laptops; if you run Linux, you might want to consider setting up a Windows partition, unless you like convincing Linux to talk to projectors.

You can do research on your own computer to your heart's content, but it's your responsibility to keep it in working order. We can't offer tech support on home computers.

Tech Support and Who To Talk To. Things go wrong. Frequently, in the case of computers. Your first resource in those situations (besides Google) should be your colleagues. Chances are that no matter how obscure the software package you're trying to get working, someone else in the department has dealt with it before. Many general questions and NICS-specific questions are also answered on the NICS website, `http://nics.ucolick.org`.

If you're having a problem with the Astro network, the first point of contact is the computer czar, Elizabeth Lovegrove (`lovegrove@ucolick.org`), or the Astro Network admin, Ramon Berger (`rwberger@ucolick.org`). If you're having any problems with a NICS-managed computer, NICS provides full tech support. Contact `nics@ucolick.org` for help.