

# 1 Getting started with NetLogo

NetLogo is a multi-agent simulation environment originally designed for children to learn about programming and to understand modeling and group dynamics. NetLogo comes with a fairly extensive **Models Library** where you can play with many different types of simulations modeling to a broad range of fields, from Biology to Mathematics and beyond. NetLogo has a graphical user interface for running simulations and a text-based programming environment for creating simulations. It comes with three tutorials that introduce you to the functionalities in the environment.

This lab will get you started with NetLogo by running through the tutorials:

- The first tutorial, **Tutorial #1: Models**, shows you how to open and run a sample model from the Models Library. It describes the different elements of the graphical user interface and shows you how to use them. The tutorial is based on the *Wolf Sheep Predation* model that was demonstrated in class.
- The second tutorial, **Tutorial #2: Commands**, shows you how to control aspects of a simulation via the text-based *Command Center*.
- The third tutorial, **Tutorial #3: Procedures**, shows you how to construct your own simulations, beginning with creating a user interface and then moving on to teach the NetLogo programming language. Notice that many of the commands that comprise the language can also be entered one at a time in the *Command Center*. This can sometimes be a helpful way of debugging programs.

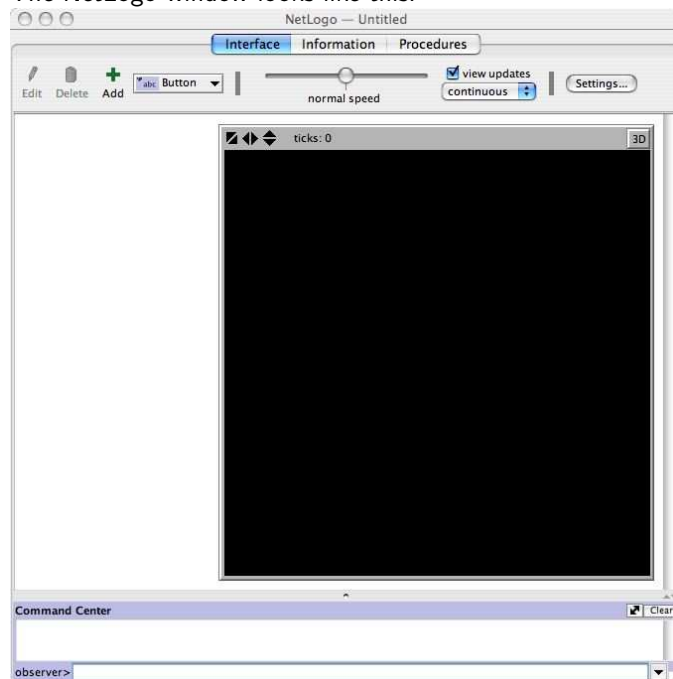
## 1.1 Start up NetLogo

Double-click the **NetLogo** icon, which looks like this:



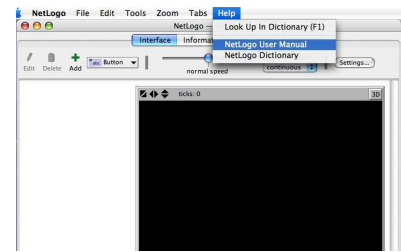
NetLogo 4.0.4

The NetLogo window looks like this:



## 1.2 Open the Help window

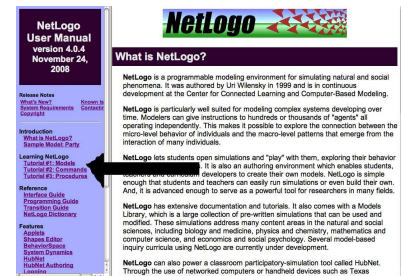
Look for the Help menu in the upper right corner of the NetLogo window. Select **NetLogo User Manual** from the pulldown menu, as shown on the right.



## 1.3 Open the Help window

A browser will open up and display the NetLogo User Manual.

Click on the **Tutorial** links (as indicated) to run through each tutorial.



# 2 Models Library

2.1 After you have finished the three tutorials and played with the Wolf Sheep Predation model, try opening and running other models in the Models Library.

2.2 Look at the code (by clicking on the *Procedures* tab) for each model you try.

2.3 Experiment with the model by modifying the code in simple ways, for example, changing the color of a set of patches or the shape of an agent.

Try modifying the rules that control the behavior of the agents. For example, in the Voting model we discussed in class, look at the code and try to find where it handles the “change vote if tied” decision. Change that to “change vote if everyone agrees”—if all the neighboring patches are the same color, then the center patch changes its color.

Try adding interface elements. Add a graph that shows the number of blue and green patches over time.

2.4 NOTE that if you modify a model, you can save it locally (but you cannot overwrite the one in the models library).

## On-line reference

NetLogo is freely downloadable from the home page below. You will also find a large collection of *Community Models* on the web page:

<http://ccl.northwestern.edu/netlogo/>