SLiM Workshop Series #1: Introduction to SLiM

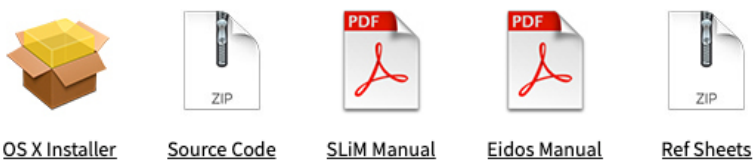
0. About the worksheets

These worksheets were written back when SLiMgui only ran on macOS, and therefore the workshop could only be done on a Mac. SLiMgui now runs on Linux, and even on Windows under the WSL, but these worksheets assume that you're on a Mac for historical reasons. Please roll with it; when you're told to surf to a website in Safari, just use whatever browser you use, and when they have you open a file in TextEdit, use whatever plain-text editor or code editor you prefer.

1. Find the online resources available for SLiM

Open the Safari browser by clicking its icon in the Dock:

Go to http://messerlab.org/slim. This is the SLiM home page. As you can see, it provides downloads of SLiM itself and of the SLiM and Eidos manuals, as well as the reference sheets (these are in your printed handouts, if you're doing the workshop in person).



When installing on macOS, you should use the double-click OS X Installer there; when installing on other platforms, follow the instructions in chapter 2 of the SLiM manual. There is now an installer of one sort or another for most Linux platforms, including Ubuntu, Debian, Fedora, RedHat, CentOS, and Arch. You can also build SLiM from sources yourself; see chapter 2 for details.

Scroll past **Downloads** and **SLiMgui** to **Mailing lists**. You may wish to subscribe to the slim-discuss mailing list, so that you'll see announcements about new SLiM versions, and can ask questions. Click on the slim-discuss link and it will open in a new window. Then click the "Apply to join group" button to subscribe:

To subscribe, you'll need to log in to Google (or create a new Google account). You can do this later, of course, or not at all.

Go back to the SLiM home page and scroll down past **Mailing lists** to **SLiM Workshops**. At the bottom of this section should be a link titled "Downloadable solutions to workshop exercises". Right-click (with the right mouse button, if you have one), or control-click (with the control key held down while clicking), on that link, to get a context menu from which you can choose **Download Linked File As…**. Do not change the filename, but change the current download folder so that the file downloads to the Desktop folder (by clicking Desktop from the sidebar on the left edge of the Save panel, for example). With the file on the Desktop, double-click it to unzip the archive, then double-click the resulting folder to see its contents. This folder contains solutions for

the exercises we will do throughout the workshop. If you get stuck, or have trouble getting back syntax errors and typos in your scripts, feel free to refer to these solutions; there is no dishonor is consulting the answer key here! The filenames start with the number of the lecture in question, followed by the worksheet step involved, and then the exercise number (if applicable).

Now scroll down past **News** to the heading **License and citation**. The first three papers shown there are about the current version of SLiM, so you may wish to follow the DOI links there to read them in your own time. The first is about SLiM 3 generally; the second is about tree-sequence recording; and the third is a step-by-step introduction to SLiM 3 for beginners.

Finally, scroll down past **License and citation**, **The SLiM Icon**, and **Older versions** to **Publications**. This is a curated list of papers that cite SLiM; it may be of interest to you, to see how people in your field might be using SLiM in their research.

2. Open the SLiM and Eidos manuals

Aliases to the SLiM and Eidos manuals, named `SLiM_Manual.pdf` and `Eidos_Manual.pdf`, may be on the desktop of your computer, or perhaps in the Dock, or perhaps in the `/Applications` folder on macOS. Locate them now, or download them, and open them (by double-clicking); on macOS, they should open in a program called Preview.app.

Have a quick look at the **SLiM manual**'s table of contents. Notice that chapter 1 provides a broad overview of SLiM; this is essential reading, although we will cover the same topics in this workshop. Chapter 2 gives detailed instructions for installation, and for building from sources, on various platforms. Chapter 3 is a quick introduction to the graphical modeling environment SLiMgui. The rest of Part I of the manual mostly provides "recipes" for different types of SLiM models; there are more than 100 recipes in the manual. Part II of the manual is the reference documentation for SLiM. It begins with two chapters that discuss the generation cycle in detail, for Wright–Fisher and non-Wright–Fisher models respectively, and then provides full reference documentation on every Eidos class provided by SLiM.

EXERCISE: Look through the chapters of Part I at the titles of some of the recipes, to get a sense of the range of topics covered. Spend a minute or so on this.

Now take a look at the **Eidos manual**'s table of contents. Chapter 1 provides a brief overview, and chapter 2 then provides detailed reference documentation of every feature of the language – types, vectors, operators, expressions, variables, loops, conditionals, functions, objects, and so forth. Chapter 3 provides the reference documentation for every built-in Eidos function. We will be using Eidos extensively; if you want to know more about a language feature, this manual is your first stop.

3. BEEP!

When I started this workshop, I asked that when people finished a worksheet they should say "BEEP!" very loudly, to let me know. This worked poorly, because people were shy, and so I didn't know when the class was ready to move on. Now I have a new method: putting a yellow post-it up on the top of your screen. For historical reasons, this will still be referred to as "beeping".

After you've beeped – i.e., put up your post-it – please help a neighbor if they are stuck, and then perhaps find something to read that interests you in the reference materials we have just explored.