Introduction

Motivation

Here's the dream:

> Computers have revolutionized research, and that revolution is only
> beginning. Every day, scientists and engineers all over the world use
> them to study things that are too big, too small, too fast, too slow,
> too expensive, too dangerous, or just too hard to study any other way.

Now here's the reality:

> Every day, scholars all over the world waste time wrestling with
> computers. Tasks that should take a few moments take hours or days,
> and many things never work at all. When scientists try to get help,
> they are inundated with unhelpful information, and give up.

This sorry state of affairs persists for three reasons:

1. *No room, no time.*
   Everybody's schedule is full —– there's simply not space to add more
   about computing without dropping something else.

2. *The blind leading the blind.*
   The infrastructure doesn't exist to help scholars develop the skills they need. Senior
   researchers can't teach the next generation how to do things
   that they don't know how to do themselves.

3. *Autodidact Chauvinism.*
   Since there are no classrooms, scholars are pressured to teach themselves. But self–
   learning is time consuming and nearly impossible without a base level of knowledge.

Why Bother?

Why learn to program?

1. *Practical Efficiency.*
   Even though it takes some time at first, learning how to program can save you an
   enormous amount of time doing basic tasks that you would otherwise do by hand, once
   you get the hang of it.

2. *New Tools.*
   Some things are impossible, or nearly impossible to do by hand. Computers open the door for new tools and methods, but many require programming skills.

3. *New Data.*
   The Internet is a wealth of data waiting to be analyzed! Whether its collecting Twitter data, working with the Congress API, or scraping websites, programming knowledge is a must.

4. *Better Science.*
   (Quality) programming can open the door to better transparency, reproducibility, and collaboration in the Social Sciences.

Learning Objectives

> The basic learning objective of this workshop is to leave here with the knowledge and skills required to learn on your own, whether that's through programming documentation, StackExchange and other online fora, or further [D-Lab (http://dlab.berkeley.edu/training)](http://dlab.berkeley.edu/training)
> workshops!

By the end of this workshop, I want everyone here be able to:

- Understand basic programming terminologies, structures, and workflows
- Use shell/bash/terminal without fear
- Know and use essential Unix commands
- Run somebody else's script
- Know where different programming languages reside on your computer, and how to actually use them
- Read StackExchange, online documentation, or other instructions and know what the heck they're talking about

About Me and Disclaimers

[Instructor introduces themself and provides motivation for the workshop.]

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