$ Python Boot Camp I Basic Programming

Computational Biology

Lecture 5

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Why learn computer programming?

- Create software to analyze your data

- Precise control of analysis

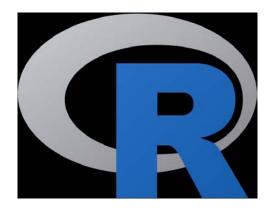- Anybody, anywhere can reproduce your findings.

How I chose the computer languages for this course

- The languages I use in Biology
  - Bash, R, Python

- The languages other professors at TAMUCC use
  - See the languages I use

- The top languages desired by companies that are hiring data scientists
  - Python, R, MySQL

Each Language Has Strengths and Weaknesses

- Bash
  - Control the computer
  - Simple file manipulation
- Python
  - Modern, Easy-to-learn
  - Data manipulation
  - Prototyping
  - Small-scale programming tasks
- R
  - Statistics and mathematics
- All are slow compared to primary languages like C

The Second Third of Course is on Python

- Great text string manipulation

- Free and well documented

- Enforces good programming style and practices

- Topics covered in this chapter
  - Variable assignment
  - Data structures
  - Program flow

- Concepts are relevant to all languages