

# Biophysics Flash Cards


**Matthew Y Wang & Sharyn A Endow 2022**  
**Computer Coding Flash Cards**

Duke University  
Durham, NC USA

## Instructions

Print the flash cards from the templates on pages 2-3. Each page has 4 flash cards.  
The concept is on the left side of the template and the explanation is on the right side.

To create individual flash cards:

- 1) Trim the margins on the top, bottom, and sides of the page where you see the scissors icon 
- 2) Cut between the cards where you see the scissors icon to create individual cards.
- 3) Fold the cards in half at the dashed "Fold" line and align the front and back edges of each card.
- 4) Each template makes 4 flash cards of 2.5 x 3.75 inch (H x W). There are 8 cards in a set.

The colored border indicates that the cards are in the same set.

## Objectives & Grade Level

Teach students basic concepts about biophysics. Appropriate for middle school to high school students. Students can use the flash cards singly or in groups by studying the cards and testing themselves or others on concepts from the cards.

## Acknowledgements

Designed and created as Broader Impacts with support by National Science Foundation Grant #CMMI 1660924 to SAE.

Copyright © 2022 by the Biophysical Society. All rights reserved.

# Computer Coding



Writing instructions for instruments to start and run smoothly or do tasks

# Computer Languages



Computer programming languages include

C  
Python  
C++  
JavaScript

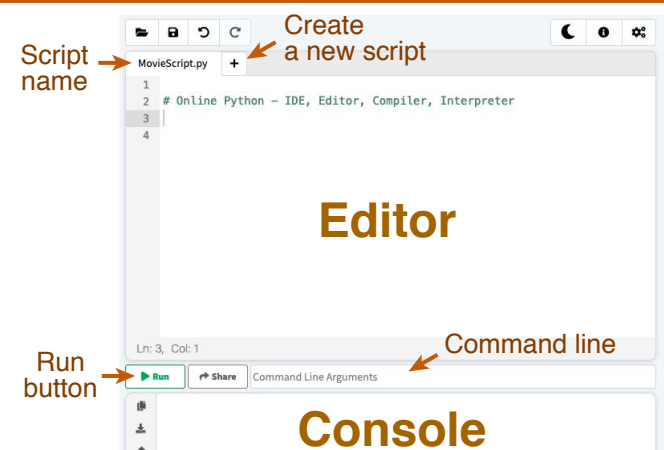
# Integrative Development Environment



IDEs are software for computer coding

Python IDEs include  
PyCharm  
Spyder  
IDL

# Parts of an IDE



# What is a Script?



**Scripts** are lists of instructions given to a computer

**Scripts** are created by **computer coding**

# What is a Variable?



**Variables** are sets of information:

**Numbers**

**Strings** (words or letters)

**Lists** (numbers, words or letters)

# Coding Errors



**Coding errors** are mistakes in a script

**Coding error messages** will appear in **red** in the Console

# Coding Terms

**Argument**  
**Output**  
**Syntax**



**Argument** - command

**Output** - command results

**Syntax** - coding grammar