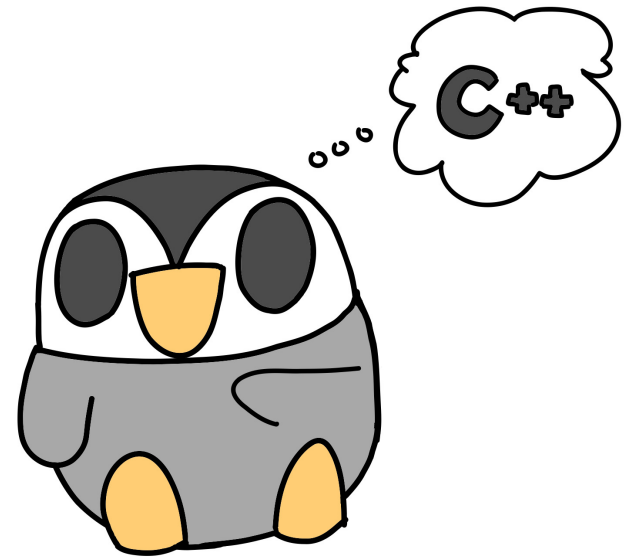# CS 225

Data Structures

August 24 – C++ Design in CS 225
G Carl Evans & Brad Solomon

What about C++

Lectures from Previous Semesters Covering C++ Available Here
https://mediaspace.illinois.edu/playlist/dedicated/177553201/1_s10ctiib/1_z2cz05fi

Encapsulation - Files

Encapsulation - Namespaces

cs225

Cube

PNG

HSLAPixel

std

cout

vector

queue

...

...

Encapsulation - Classes

Memory Management

- Stack

- Heap

- Global

Memory Management - Ownership

Memory Management - Classes

- Constructors

- Destructors

Memory Management - Parameters

- Value

- Value – Pointer

- Reference

Const

- Values

- References

- Methods

Overloading

Operators that can be overloaded in C++	
Arithmetic	+ – * / % ++ --
Bitwise	& | ^ ~ << >>
Assignment	=
Comparison	== != > < >= <=
Logical	! && ||
Other	[ ] ( ) ->

The "Rule of Three/Five"

If it is <u>necessary to define any one</u> of these three functions in a class, it will be <u>necessary to define all three</u> of these functions:

1.

2.

3.

The "Rule of Zero"

Corollary to Rule of Five

Classes that **declare** custom destructors, copy/move constructors or copy/move assignment operators should deal exclusively with ownership. Other classes should not **declare** custom destructors, copy/move constructors or copy/move assignment operators

–Scott Meyers

Inheritance

Templates

ADT

Open Lab This Week

This week lab are open office hours to help you get your machine setup and can be reached at this link.