

# CS 12

## Final Review

### Terms

- interactive program
- batch program
- stream
- recursive solution of a function
- iterative solution of a function
- pointer
- pass-by-value
- pass-by-reference
- array
- pointer to function
- string
- structure
- class
- abstract data type
- constructor
- destructor
- overloading
- signature
- friend
- inheritance
- base class
- derived class
- polymorphism
- virtual functions
- templates

## Topics

- Formatting Output
  - C++, using cout
  - printf
  - precision
  - width
  - fill characters
  - iosflags - left, right, showpoint, showpos, fixed, scientific
  - printing in other bases - decimal, hexadecimal, octal
- Reading Input
  - extraction operator
  - get - reading a character
  - get - reading a string
  - getline
- File Processing
  - declaring a file stream
  - opening
  - verification of open
  - reading from a file
  - writing to a file
  - closing
- Recursion vs. Iteration
- Multi-Dimensional Arrays
- Pointers
  - Indirect Assignment and Accessing
  - Pass-by-Reference
  - using pointers with arrays
  - pointers to functions
  - dynamic allocation
- Strings
  - declaring - using array format, using pointer format
  - initializing

- manipulating - using string functions
  - \* strlen
  - \* strcpy
  - \* strncpy
  - \* strcmp
  - \* strncmp
  - \* strcat
  - \* strncat
  - \* strchr
  - \* strstr
  - \* strtok
- Structures
- Classes
  - Controlling Access to members
    - \* public
    - \* private
    - \* protected
  - Constructor
  - Destructor
  - Inheritance
    - \* Inheritance modes
      - public
      - private
      - protected
    - \* Order of constructor/destructor calls
- Function Overloading
- Operator Overloading
- Virtual Functions
- Templates
  - Function templates
  - Class templates
  - template parameters
    - \* type parameters
    - \* value parameters