

# C++ for Science and Engineering COSC3000/6000

2018 Spring Semester

## Part III

# Procedural Abstraction and Functions

## 1 Top Down Design

- To write a program
  - Develop the algorithm that the program will use
  - Translate the algorithm into the programming language

- Top Down Design (also called stepwise refinement)
  - Break the algorithm into subtasks
  - Break each subtask into smaller subtasks
  - Eventually the smaller **subtasks are trivial** to implement in the programming language

### 1.1 Benefits of Top Down Design

- Subtasks, or functions in C++, make programs
  - Easier to understand
  - Easier to change
  - Easier to write
  - Easier to test
  - Easier to debug
  - Easier for teams to develop