

# CSCE 206 Fall 2019 Lab: Assignment #2

**Submission Deadline: 23:59, Oct 06, 2019, Sunday.**

- 1. Follow the [submission guideline](#) to submit the assignment through eCampus.**
- 2. Add comments to your code, including your name, UIN and the class section you are in with the block comments to the head of your code file.**

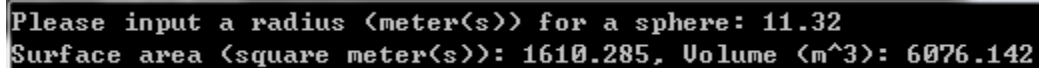
## **Question 1. Geometry Calculator (50 points)**

Write a program to calculate surface area and volume of a sphere (ball). The program will ask user to input radius (meter(s)) of a sphere and return its area and volume (output should round to three decimal places). Use macro **#define** for value of  $\pi$  (suppose  $\pi = 3.1415927$ ). Learn to use **pow** function for evaluating square and cubic in **math.h** of C programming library (Google "pow c programming"). You can use **scanf** function and **double** type for radius input. Name your program file Hw2\_q1\_code.c.

**Example input and output: (purple texts are what the program should print on the screen to instruct the user, the black texts are what the user types in or results output.)**

Please input a radius (meter(s)) for a sphere: 11.32

Surface area (square meter(s)): 1610.285, Volume (m<sup>3</sup>): 6076.142



```
Please input a radius (meter(s)) for a sphere: 11.32
Surface area (square meter(s)): 1610.285, Volume (m^3): 6076.142
```

When using GCC to compile Question 1, Lab2, please add **-lm** to the end of command to avoid error return.

Like: "gcc filename.c -o outputfilename -lm"

## **Question 2. Sorting (50 points)**

For random input of three numbers, design a C program to store these three numbers and sort them and then output your results from smallest to largest. You can use **scanf** function and use **double** type for numbers input. Name your program file Hw2\_q2\_code.c.

**Example input and output: (purple texts are what the program should print on the screen to instruct the user, the black texts are what the user types in or results output.)**

Please input three numbers: 112.38 43.77 5.91

Sorting smallest to largest: 5.91 43.77 112.38

Please input three numbers: 43.77 5.91 112.38

Sorting smallest to largest: 5.91 43.77 112.38

Please input three numbers: 43.77 112.38 5.91

Sorting smallest to largest: 5.91 43.77 112.38

Please input three numbers: 5.91 43.77 112.38

Sorting smallest to largest: 5.91 43.77 112.38

```
Please input three numbers: 112.38 43.77 5.91
Sorting smallest to largest: 5.910000 43.770000 112.380000
```

```
Please input three numbers: 43.77 5.91 112.38
Sorting smallest to largest: 5.910000 43.770000 112.380000
```

```
Please input three numbers: 43.77 112.38 5.91
Sorting smallest to largest: 5.910000 43.770000 112.380000
```

```
Please input three numbers: 5.91 43.77 112.38
Sorting smallest to largest: 5.910000 43.770000 112.380000
```

**Hint:** Use the method you learned from Problem 2 of Lab 1.