

# Coding Assignment 01

CSCI 220: Dr. Hajja

Due Monday, September the 5th (midnight)

**Learning objectives:** Write four simple Python functions that ask for input, do some arithmetic, and provide output. Write all four functions in one Main.py Python file. Upload the file through Oaks.

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**Question 1)** Write a Python function ('question01') to calculate the area of a triangle given the length of its three sides  $a$ ,  $b$ , and  $c$  using these formulas:

$$s = \frac{a + b + c}{2}$$

$$\text{area} = \sqrt{s(s-a)(s-b)(s-c)}$$

You should write code to prompt the user for each side of the triangle, then print the area according to the formulas above.

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**Question 2)** Write a Python function ('question02') that accepts two points using the coordinates  $x$  and  $y$ , and determine the distance between the two points.

$$\text{distance} = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

You should write code to prompt the user for the two points ( $x$  and  $y$  for each point), then print the Euclidean distance according to the formula above.

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**Question 3)** Write a Python function ('question03') that calculates (and prints) the volume and surface area of a sphere from its radius, given as input. Here are some formulas that might be useful:

$$\text{volume} = 4/3\pi r^3$$

$$\text{surface area} = 4\pi r^2$$

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**Question 4)** Write a Python function ('question04') that calculates (and prints) the average of three exam scores provided by the user.