# SDSU COMP521
# Fall 2022

Homework 04 - Due Date: 10/14/2022

October 5, 2022

## Problem

Approximate the integral of $f(x) = e^{-2x} sin(2\pi x)$ on the interval $x \in [0, 3.5]$ using:

1. The composite trapezoidal rule

2. The composite Simpson's rule

3. Adaptive quadrature

**You have to use the Matlab code provided with this document**.

**For the composite rules**, use the following number of integration subintervals $N = \{20, 40, 80, 160\}$. Use these solutions to determine the orders of accuracy. The exact integral is 0.1446445197. Use this value to calculate the absolute errors.

Compare the results from the quadratures. Use a table to show the results.

**Discuss your results**.

**Deliverable:** Submit a .PDF file with your report. Submit the main.m code file only with your modifications.