**ECE 4822: Engineering Computation IV**

**Homework No. 8: Managing GPU Resources**

**Goal:** Learn how to write code that adapts to the resources available to you.

**Description:**

Write a program that does the following things:

1. Determines the number of GPUs on a host.
2. Acquires information about the hardware capability of those GPUs.
3. Times the execution of your code using the built-in timing capability of a GPU.

Demonstrate your ability to split a job, such as matrix multiplication, into multiple tasks that can run on multiple GPUs and run in parallel on each GPU. Compare timing to what you achieved on the single-threaded CPU version of the code. Plot execution time as a function of the number of GPUs used (each node has a maximum of 4 GPUs).