# EE147

## Lab 1 - Simple Vector Add

**Due Mon. April 16 at 11:59:59pm**

1) Log in to bender.engr.ucr.edu. You will need an ENGR account. EE and CEN students should already have one. If you do not, you can create one here: https://www.engr.ucr.edu/secured/systems/login.php

2) Download lab1-starter.zip from the course website and move it to bender.

3) Extract lab1-starter.zip. There should be 5 files: kernel.cu, main.cu, Makefile, support.cu, support.h

4) By default, vector add operates on 1000 elements, which are randomly generated. To ensure consistency when grading, **do not change the srand seed value**.

5) Complete the vector add application by adding your code to main.cu and kernel.cu. Use thread block size of 256.

6) Answer the following questions:

1. How many total thread blocks do we use?

2. Are all thread blocks full? That is, do all threads in thread blocks have data to operate on?

3. How can this basic vector add program be improved?

**Submission:**

Upload a zip file with your updated code and report with program output to iLearn. Please remove all executable files or other unnecessary files from the directory before creating the zip. Please name your report report.txt , report.pdf or report.doc

**Grading:**

Your submission will be graded on the following parameters.

Correctness: 35%
- Results of GPU implementation is the same as CPU implementation.

Functionality: 35%
- Correct usage of CUDA library calls and C extensions. - Correct usage of thread id's in index calculations.

Report: 30%
- Answer to question 1: 10%, answer to question 2: 12%, answer to quester 3: 8%