Laboratory #06 ENEE 148A Fall 2016

This is an individual lab! Complete the following tasks:

1. Build a circuit that uses the HMC5883L three-axis magnetic sensor.
2. Download and run the code HMC5883L.
3. Have your instructor verify successful operation.
4. Use the mu-metal (zero magnetic field chamber) to get the null data for your sensor.
5. Write a code that will calibrate the amplitude of the three axes of the sensor
6. Run the code and calibrate your sensor
7. Write a code that will:
	1. take magnetic field data points every second
	2. Will print the magnetic field components
	3. Will print the magnetic field amplitude
	4. Will print the angle that the sensor makes with respect to magnetic north.
8. Have your instructor verify successful operation.

For the write-up of this lab, due 28 October 2016, you need to submit (1) a paper copy of the codes that you wrote and (2) an electronic copy of the codes that you wrote. You also need to draw a diagram of the circuit that you built. Write a summary document of your lab procedure and results of your codes (present and evaluate your results).



For information on the HMC5883L, see:

<https://www.sparkfun.com/products/10530>

<http://www.parallax.com/sites/default/files/downloads/29133-HMC5883L-Compass-Module-IC-Documentation-v1.0.pdf>

NOTE: THERE ARE MANY BREAKOUT BOARDS WITH THE HMC5883L AND THEY HAVE A VARIETY OF PIN ARRANGMENTS. ***OUR*** PIN ARRANGMEMENT IS SHOWN IN THE PICTURE ABOVE. THE LINKS ABOVE ARE TO DIFFERENT BOARDS WITH DIFFFERENT PIN CONFIGURATIONS AND ARE INCLUDED ONLY FYI. USE THE PIN CONFIGURATION IN THE PICTURE FOR OUR LAB (NO CONNECTION TO DRDY IS NEEDED).