**ECE 1111: Engineering Computation I**

**Homework No. 15: Algorithms**

**Goal:** Algorithms play an important role in programming since we always want to do things faster, better, and with less memory. In this assignment, you will learn how to select and implement a matrix inversion algorithm.

**Description:** Add a matrix inversion method to the C++ class that you developed in HW No. 14:

* Read a matrix from a file using the I/O routines previously developed.
* Create a matrix object with the data.
* Display the matrix.
* Check if the matrix is square.
* If so, call the object’s matrix inversion function and display the inverted matrix.
* If not, print an error message.
* Take the inverted matrix and call the matrix’s inversion matrix.
* Display the result, which should match the original matrix.

Demonstrate your code is fully debugged by running several examples.

You will have to research an appropriate algorithm and implement it in C++ as a private method that is called by your public inversion method.

Submit your well-commented and well-documented code by creating a directory using your last name – all lowercase – here:

/data/courses/ece\_1111/current/homework/hw\_15

Your program must compile with make. Your executable must be named “my\_prog.exe”. Your program does not need to accept any arguments. Make sure you print the results in a clear, easy-to-read format.