Homework 3 due Oct. 22nd, 2015 at 10 a.m.

From Burden and Faires *Numerical Analysis*, 9th EDITION. YOU ARE RESPONSIBLE FOR MAKING SURE YOU DO THE CORRECT PROBLEMS - check HW Supplement page!

Regarding code: you MUST PRINT OUT your code and turn it in with your assignment. For all codes, you only need to print out the main file and an example of how you call it for a specific function. For each problem however, print out THE LAST iteration of your code and box/highlight it (the one that is satisfies the stopping criterion). Make sure you output at least 15 digits (if using Matlab use ”format long”).

**451 students:**
Chapter 2.3, Exercises: 1 (by hand), 2 (by hand), 3(a) (by hand), 5(a,c) (code), 6(a), 20.
Chapter 2.4, Exercises: 1(a, b), 11.

**551 students:**
Problem 1: Solve $e^x - 3x^2 = 0$ for a solution in the interval $[0, 1]$ using  
(a) Bisection Method  
(b) Fixed Point iteration  
(c) Newton’s Method  
and a tolerance of $10^{-5}$. For each method: print out EVERY iteration until it converges, as well as the approximation and the error at each iteration (for (a) and (c) use the stopping criterion $|f(p_n)| < tol$ and for (b) use $|p_n - p_{n-1}| < tol$). For each method, comment on the error behavior.

Chapter 2.3, Exercises: 6(a,b), 7(a,b), 11(a), 20, 24.
Chapter 2.4, Exercises: 1(a,b), 3(a,b), 8(a), 11.