

**COMPUTER LAB #1**  
**MATH 5610/6860 FALL 2011**

- (1) Use the Taylor expansion of  $f(x) = \ln(1 + x)$  at  $x = 0$  to approximate  $f(x)$  for  $x = 0.1$ ,  $x = 0.5$  and  $x = 1$ . To practice your Matlab skills, please implement this in two ways: one using a for loop and the other one relying only on array syntax. Put each of the different “methods” in its own Matlab function.
- (2) Produce a table with the approximation error for  $n = 5$ ,  $n = 10$  and  $n = 20$  in the rows and all the combinations of values of  $x$  and methods to compute the Taylor approximation as columns.