**PSET 5 – Assigned 2.21.2019 – Due 2.27.19 at Midnight**

Note collaborations in the file comment headers. Place all work in a single zipped folder with your last name as part of the file name. Submit on course website.

**Problem 1** – Complete question 5.8 from the text. Part (a) hint see the 5.6 case study for good example of calculating number of iterations *a priori*. For Part (b) include a plot of function from the limits given in the problem statement (0 to 35 degrees C) and put markers on the curve for the three fit points ([O] = 8, 10, and 14 mg/L) using the fit results.

**Problem 2** – Complete question 5.10 from the text. ‘Discuss your results’ = display on the screen at the end of your M-file which technique (bisection or false position) is better for this curve and given upper and lower guesses.

**Problem 3** – Complete question 5.11 from the text. Use any root technique you would like. Generate a plot that ends at 99% substrate consumption. Display the end time on the plot.

**Problem 4** – Complete question 6.15 from the text. You can also use Excel SOLVER if you prefer this method. [NOTE: I had a problem using the universal gas constant value they gave in the book. I believe it is incorrect. Instead I used 8.314 m^3\*Pa/K/mol and converted all my units to SI. This will yield the molar volume (m^3/mol) of the compressed gas. You will need to use the molar mass of methane to then solve the problem]

**Problem 5 –** Complete question 6.3 from the text. Print out your answers to the command window (with headers so the grader knows what parts of the problem are being displayed).

**Group credit –** Demonstrate collaboration on SLACK, give and receive feedback on these questions with your group.