

**EVE 290**  
**Introduction to Environmental Engineering**  
**Fall 2010**  
**Homework #14**

1. Consider the following data from a BOD test:

Day	DO [mg/L]
0	9
1	9
2	9
3	8
4	7
5	6
6	6
7	4
8	3
9	3

If  $D = 1$ , determine

- a.  $BOD_5$
  - b. Ultimate carbonaceous BOD ( $U$ )
  - c. Ultimate nitrogenous BOD ( $U^*$ )
  - d. Why do you think no oxygen was used until the 3<sup>rd</sup> day?
2. The following data were obtained for a wastewater sample:

TS = 4000 mg/L  
SS = 5000 mg/L  
VSS = 2000 mg/L  
FSS = 1000 mg/L

Which of these numbers is likely wrong? Why?

3. The following test results were obtained for a sample of river water. All solids analyses were performed using a sample volume of 100 mL. Determine TS, SS, DS, VS, and FS.

$M_{\text{clean evaporating dish}}$	25.6039 g
$M_{\text{dish plus residue after evap (103}^\circ\text{ C)}}$	25.6289 g
$M_{\text{dish plus residue after ignition (600}^\circ\text{ C)}}$	25.6119 g
$M_{\text{clean glass fiber filter}}$	1.6469 g
$M_{\text{glass filter plus residue after drying (103}^\circ\text{ C)}}$	1.6544 g