

CVEN 5534
Assignment 2

Due: Thursday, Feb. 3.

On the next page is a schematic of a biological wastewater treatment process (called activated sludge) to carry out carbon (COD), nitrogen, phosphorus, and sulfur cycling by microorganisms for removal of COD, nitrogen, and phosphorus from wastewater (sulfur transformation also will occur).

Revisit your biogeochemical element cycle (assignment 1).

1. Define the microbial, physical, or chemical processes that would dominate in each tank (fermentation, anoxic, aeration, digester).
2. Predict the soluble, particulate and gas-phase forms of the element you studied in assignment 1 that would dominate in each tank and in the liquid effluent and the dewatered biosolids.
3. Define the microorganism populations involved in the transformations. You do not need to give species – just the types of microorganisms (e.g., aerobic heterotrophic bacteria, sulfate-reducing bacteria, nitrifying bacteria, phosphorus-accumulating bacteria, etc.)

