**FW364: Lab 1 Grading Rubric**

**Completeness**

**General Information and Assumptions**

- Statement of research question, i.e., calculating residence time of oceans 2

- Mention mass-balance approach to solving question 2

- Mention steady-state assumption (or total in = total out) 2

- Mention assumption that precipitation falls evenly over water and land 1

- Mention assumption that other inputs and outputs from the ocean are negligible 1

i.e., Some flows were ignored

**Methods and Results**

- Presentation of a conceptual diagram (box-plot diagram) 2

Boxes for ocean and land 1

Arrow for runoff from land to ocean 1

Arrows for precipitation onto land and ocean 1

Arrows for evapotranspiration (land) and evaporation (ocean) 1

- Correct unit conversion for surface area of ocean (m2 to km2) 1

- Correct unit conversion for surface area of earth (m2 to km2) 1

- Correct calculation of surface area of land (as Earth – Oceans) 1

- Correct calculation of precipitation onto land 1

- Correct calculation of precipitation onto ocean 1

- Correct calculation of runoff (precipitation on land – evapotranspiration) 1

- Equation: T = S/F presented without numbers plugged in 2

- Description of equation: T: turnover (or residence) time, S: stock, F: flow 1

- Correct calculation of flow to ocean (F) as runoff + precipitation 2

- Use of volume of oceans as stock (S) 2

- Presentation of equation T = S/F with S and F quantities filed in 2

- Correct calculation of turnover time as 3013 yrs (could round off to 3000 yrs) 3

- Inclusion of correct units throughout calculations 3

**Interpretation**

- Some interpretation or discussion of results (not much for this report) 3

**Other**

**Organization**

- Topics presented in an organized manner 2

- Clear logical flow throughout the description of methods and results 3

**Clarity**

- Conceptual diagram put together well (can be hand drawn) 2

- Text is easy to comprehend 2

- *Sense that the student understood the problem (subjective)* 1

**General Presentation**

- Good grammar 1

- Good spelling 1