**ES302 Quiz 1 (20 Pts) Spring 2023 NAME\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**OPEN BOOK AND INTERNET RESOURCES**

1. Provide a one-paragraph summary of lessons learned during the Week 1 guest lecture by Vince Cronin, from the Association of Engineering and Environmental Geologists organization. In your summary, provide three topics of interest that you learned from the presentation.
2. Provide a one-paragraph summary of lessons learned during the Week 3 field trip to the OSU Water Research Conference. In your summary, provide three topics of interest that you learned from the oral and poster presentations.
3. In astronomy, the distance from the Earth to the Sun is equal to 1 “astronomical unit” (AU), a measure of distance that astronomers use to characterize the dimensions of our solar system. Given that the average distance from the Earth to the Sun is 93 x 106 miles in the English measurement system, how many kilometers distant is a mystery planet that is located 9.6 AU from the sun? **Show all of your math work and unit algebra / conversions.**
4. The average density of planet Earth is 5500 kg/m3. Given that the average radius of the Earth is 3,959 mi, estimate the total mass of the planet in kilograms and metric tons. **List the equation for density and explain all variables. List the equation for determining the volume of a sphere. Show all of your math work and unit algebra / conversions.**
5. The average distance from the earth to the sun is 93 million miles. Given the speed of light is equal to 3 x 108 m/sec, calculate how long it takes electromagnetic radiation to travel from the sun to the Earth; answer in both minutes and hours. **List the equation for velocity and explain all variables. Show all of your math work and unit algebra / conversions.**