Name Date

**Nuclear Chemistry Pre-Lecture Assignment**

1. What subatomic particles make up the nucleus of the atom?
2. In nuclear chemistry these particles collectively are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
3. In nuclear chemistry an atom is referred to as a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ .
4. How is an atom in nuclear chemistry identified?
5. Define mass defect.
6. What does mass defect represent?
7. What is Einstein’s famous equation?
8. What kinds of elements have the highest nuclear binding energies?
9. How does the stability of a nuclide relate to the nuclear binding energy?
10. What is the nuclear shell model?
11. What are magic numbers?
12. On the band of stability, what is the neutron-proton ratio for low atomic number atoms?
13. How does the neutron-proton ratio change as the atomic number increases?
14. Unstable nuclides undergo what type of change?
15. As a radioactive atom undergoes radioactive decay, what happens to the atom?
16. What is a nuclear reaction?
17. What happens to the mass numbers and the atomic numbers in a nuclear reaction?
18. Define transmutation.