1. Given a description of an experiment, determine whether it is a factorial experiment, a fractional factorial experiment, or neither.

2. Given a description of a factorial experiment, be able to identify the
   2.1. Population of interest
   2.2. Response variable
   2.3. Factors (and their levels)
   2.4. Treatments (and tell how many there are)
   2.5. Extraneous variables (if any)
   2.6. Controlled variables (if any)
   2.7. Blocking variables (if any)
   2.8. Lurking variables (if any)
   2.9. Experimental units
   2.10. Number of replicates

3. Given a description of a factorial experiment, be able to critically review the experiment.
   3.1. Identify the above quantities—does the process of doing this point out any errors in the design?
   3.2. Determine whether the design appropriately deals with extraneous variables via
       3.2.1. Controlling the value of such a variable
       3.2.2. Blocking on such a variable
       3.2.3. Replication
       3.2.4. Randomization
   3.3. Was randomization used appropriately?
   3.4. Determine whether the number of replicates is appropriate
   3.5. Is the experimental unit appropriate for answering the question of interest?
       3.5.1. Remember NASCAR vs. Detroit
   3.6. What is the (are the) population(s) of interest?

4. Design and carry out a complete factorial experiment with two factors, each of which has at least two levels, and one of which has at least three levels. You must use a blocking variable.
   4.1. Submit a project proposal
   4.2. Revise your proposal as per instructor comments.
   4.3. Submit a detailed protocol.
   4.4. Peer review the detailed protocol of another group.
   4.5. Revise your protocol as per peer comments.
   4.6. Carry out the experiment
       4.6.1. Collect the data
       4.6.2. Note unexpected pitfalls and glitches
4.7. Turn in the data
4.8. Analyze the experiment using what you learn in the ANOVA section
4.9. Write a report
4.10. Revise report if necessary