Peer Review Instructions—Environmental Chemistry

The peer review process is commonly used in the scientific community to evaluate and critique work to be published. Most work that is found in the scientific journals have undergone an in-depth scientific critique by two or three individuals who are generally familiar with the area of research, but who were not directly involved. The task of the reviewer is critical to helping to provide high quality, understandable work for general release to the scientific community. The reviewers also try to ensure that the conclusions that are made are solidly supported by the data collected and that the logic applied is clear and understandable.

During the third week of the environmental lab, you will act as a peer reviewer for two of your fellow classmates. In this role we believe that you will not only help them improve their lab report, but that you will also gain better insight to what it takes to write an effective lab report. Specifically the goals behind the activity are:

- Read another person’s lab report to better understand the importance of effective communication through writing (what works and what does not.)
- Observe how individuals will differently describe a similar process (remember, there isn’t only one way to write a good lab report.)
- Begin to understand what information needs to be present in each section of a lab report
- Gain feedback from two other individuals on your own work.
- Appreciate the benefits of someone reviewing your work (we will not explicitly repeat this process in class, but I would highly encourage you to continue to have someone review your lab reports prior to you handing them in.)

Instructions for Reviewing

In class you will be given another student’s lab report to evaluate and will have 20 minutes to review it. Read through the lab report and answer the questions on the peer reviewer sheet. DO NOT WRITE ON THE REPORT. For each of the questions on the sheet indicate how effectively the author addressed the topic. Keep in mind that you will most benefit the author by being honest (not simply marking “good” for everything simply to make them feel better.)

Once you have answered the questions, indicate at least one strength and weakness that you noted in the paper. You may also wish to tally the total score from each section. To get an estimate of the grade, you can multiply the total from each section by the weighting factor and then sum those for a total (out of 30 pts) on the paper. This will provide an estimate of the grade that you would give the paper. Note that a straight “average” paper with a “yes” to all the yes/no questions will result in a 3.0 grade.

Once you have completed the review process, return the report and your question sheet to the LA. You will receive a second lab report and repeat the procedure. The remaining
lab period will give you an opportunity to ask your reviewer any questions, or to continue any additional work that you need to do/redo.

Receiving your reviews

Don’t Panic! One of the biggest challenges that any author faces is receiving constructive criticism. Remember, the reviewer is not criticizing YOU, but rather the work that was presented to them. (In talking with other faculty, most scientists do not learn how to accept this kind of criticism until some experience in graduate school where a manuscript came back soaked in red ink.) Keep in mind that although you know exactly what you meant to say when you wrote something, the reviewer does not have your same experience and that they are only trying to interpret the words that you wrote. The goal of scientific writing is communication, so if the reader does not understand what you are trying to say, you will need to find a more effective way to express your ideas. You will be provided with some time to talk to your reviewers for them to clarify their comments, but keep in mind that you will not have this same benefit when your LA or professor is grading your paper. This will hopefully stress the need to become an effective communicator through writing.

Once you have the question sheets back, compare the two sets of results. Are there topics that you were consistently good at? Where there consistent problems? Where there items that were not addressed? Keep in mind that the comments may not always be consistent. One person may have completely understood what you meant in one section, while another person was puzzled. Reread sections that seem to have caused problems for one or both of the reviewers. Does it still make sense to you? You should seek out your reviewers and ask questions. Remember, simply being able to point it out that they may have missed something in the text or a figure, does not necessarily fix the problem that they did not correctly understand it in the first place. Ask yourself and your reviewer if there may have been a better way to express the idea.

You should not leave the lab until the author of each of the two papers that you review indicates that they have no more questions for you (or the lab period comes to a completion.)