Course Notes for PHY 517 / AST 443

1. As for PHY 515 / 445:
   - Maintain two log books: one for experiments 1 and 3, and the second for experiment 2, which you will use while the first one is being graded along with your experiment 1 write-up.
   - Keep notes of everything in your logbook.
   - Submit your logbook for grading along with your experiment write-up.
   - Acquaint yourself with all relevant instructions and reference material for the experiment in advance of going to the telescope to obtain your observations.

2. Specifically for PHY 517 / AST 443:
   - Attend all lectures. These are tailored to introduce only relevant and essential material for the course!
   - Choose three dates on which to obtain your data. The second and third are rain dates.
   - Do not miss an observing opportunity! Check the forecast in advance, and be ready to observe on all nights described as “partly cloudy” (<70% sky cover) or better. While >30% sky cover is generally inadequate for optical observations, the weather forecast itself is not 100% accurate, and the conditions may well be clearer! Cloud cover will not interfere with radio observations, but precipitation or high winds (>30 km/h) will.
   - Arrive at the telescope 2 hours before the intended start of your observations.
   - Obtain all of your calibration observations on the night/day of observing.
   - Use the provided log sheets to keep track of your data taking during observations.
   - Create your experiment write-up following the American Astronomical Society journal format: see the sample at http://aastex.aas.org/sample.pdf, also linked off the course website. AASTeX $\LaTeX$ 2ε is preferred, although Microsoft Word is also acceptable.
   - Your experiment write-up must contain the following sections:
     - **Abstract**: a one-paragraph summary of your goals, execution, and results from your experiment.
     - **Introduction**: a contextual description of the goals and significance of your experiment.
– **Observations**: a description of your apparatus, settings, objects, exposure times, weather conditions, calibrations, etc. Show figures with your raw data. Include a table summarizing all observations.

– **Data Reduction**: a description of how you reduced and calibrated your data, e.g., photometry, spectroscopic extractions, interferometric observations of point sources, etc. Include figures of your reduced data.

– **Data Analysis and Results**: a description of any analytical steps that you took, such as parameter estimation, error estimation and propagation, model-fitting, etc. Include relevant figures: models fits, etc.

– **Discussion**: a contextual interpretation of your results and a comparison with established results and practices; a discussion of why you may not be seeing the expected result, and so possible changes or improvement to your data taking.

– **Conclusion**: a recapitulation of the results from your experiment, and **what you learned from it**.

– **References**: a list of all cited material;

– **Appendix**: any computer code that you created for this experiment.

- Include as an integral part of your experiment write-up the appropriate figures and tables generated from your data.

- At each point, specify clearly which steps were performed by you, and which were performed in collaboration with your lab partners.

- Enjoy: this is astronomy!