Capstone Experiment Checklist

The following questions should be taken into account as you prepare, execute, and report on in your capstone project lab experiment.

APPROACHES TO LABORATORY WORK:

Was a "hypothetical basis" for your data collection appropriately derived from dimensional analysis?
Was the student self-reliant and show independence of thought and action?

SCIENTIFIC THINKING AND EXPERIMENTING:

Was the problem identified from a qualitative analysis of the system?
Was the experimental process adequately described?
Was the experimental set up adequately and accurately described?

EXPERIMENT DESIGN:

Was the experimental design appropriate to solving the stated problem?
Were appropriate data collected to solve the stated problem?

MEASUREMENT AND UNCERTAINTY:

Was an error analysis conducted?
Was all systematic error eliminated?
Was all random error minimized?
Were the approaches used to minimize systematic and random error adequately described?
Was the most accurate scientific technology available used to maximum benefit?
Was the most accurate computational software available used to maximum benefit?

STATISTICS OF OBSERVATION:

Was statistical analysis adequate?
Was error analysis adequate?
Was the conclusion presented with the appropriate degree of uncertainty?
Were all collected data reported?
Were rejected data justifiably eliminated?

EXPERIMENT EVALUATION:

Was the analysis conducted correctly?
Were data presented adequate to justify any conclusions?

COMMUNICATING RESULTS:

Was the identified research problem clearly defined?
How was the problem identified?
Was the final result clearly indicated?
Was the presentation of information clear and well organized?
Was the researcher knowledgeable and able to answer questions and/or objective criticism?
Was the format of the research report consistent with D.C. Baird's Chapter 7 guidelines?
Were data, tables, and sample calculations shown?

GENERAL CONCERNS:

Was the goal of the experiment made clear from the outset?
Was the theory base adequately described?
Was the experimental process adequately described?
Was the experimental design appropriate to the goals?
Were data presented adequate to justify any conclusions?
Was the final result clearly indicated?
Was statistical analysis adequate?
Was error analysis adequate?
Was the presentation of information clear and well organized?