

Lab work grading rubric – Electronics and Instrumentation

	<i>C-level is competent.</i>	<i>B-level is strong.</i>	<i>A-level excels.</i>	<i>D-level is deficient.</i>
<p>Measurements and circuits Circuit building: clear and organized circuit; oriented like diagram; equipment connected properly DMM: voltage, resistance, and current measurements Oscilloscope: coupling, probe and trigger settings; display used effectively; measurements of voltages and time intervals with cursor and measure. Function generator: settings for load, waveform, amplitude and offset.</p>	<p>Your circuits usually work. Equipment settings are usually right. If something's wrong, you might not recognize it. It's not easy for others (instructor, other students) to understand your circuit and equipment connections in order to fix it.</p>	<p>Your circuits often work, and equipment are often properly connected. DMM, oscilloscope and function generator settings are consistently correct. If there's a problem, you can sometimes identify the problem with some support and sometimes fix it on your own.</p>	<p>Your circuits are almost always correct, clearly laid out, and efficient. It's easy to see how the circuit compares to the diagram, and connections to the equipment are effectively done (easy to trade out components, for example). If there's a problem, you fix it on your own once it's found. You troubleshoot other people's circuits.</p>	<p>Your circuits usually work only with someone else's support. The equipment settings usually require corrections. You rarely build the circuit or setup the equipment.</p>
<p>Experimental methods Carrying out the procedure. Taking data, while noting units and uncertainties. Using graphing software to record, display, and transform data.</p>	<p>You usually carry out the procedure correctly. You take data in an ordered manner. You usually need reminders about units or uncertainties. You use the graphing software to plot your data as you go, carry out fits and transforms. You need reminders to do this well. You notice if something goes or appears wrong. Someone else has to suggest how to proceed.</p>	<p>You often carry out the procedure correctly. Your datasets are thorough, and are reported in the appropriate units with uncertainties. You routinely plot your data and can carry out fits and transforms with little support. If something goes wrong with the dataset, you have enough understanding and taken enough notes so that we can understand what went wrong and decide how to proceed.</p>	<p>You always carry out the procedure correctly and efficiently. Your datasets are high quality, organized, reported with appropriate units and uncertainties. You always plot your data as you go and allow that to guide your procedure; you carry out fits, do data transforms, and plot data with ease. If something goes wrong, a short conversation is enough to fix the problem. You fix other people's problems.</p>	<p>Your procedure usually needs correction, or you need support to get started. Your data has odd gaps or outliers. You aren't aware of the units you need to use, or what uncertainty is reasonable. You need reminders to plot your data as you take it. You need support to plot, curve fit and transform your data. You don't recognize if things go wrong.</p>
<p>Division of work and initiative</p>	<p>You and your partner work together. You contribute a fair share of the work. You primarily follow your partner's lead. When things stall, you wait until someone else comes up with an idea.</p>	<p>You and your partner are efficient. You may have a preferred role in what you do and who takes the lead, but it's clear that you're capable of the other role. When things stall, you come up with an idea. You need support before continuing.</p>	<p>You and your partner get it done. You both contribute your fair share of the work, and talk about how to proceed. When things stall, you come up with a reasonable (though not necessarily perfect) idea and try it.</p>	<p>You don't do your share of the work. You rarely take the initiative in carrying out tasks.</p>
<p>Creativity</p>	<p>You follow the lab manual.</p>	<p>You follow the manual. You suggest and try something different, but equally correct, with the procedure or setup on a lab or two. You may come up with a way to extend one of the labs in a structured and constructive way.</p>	<p>You suggest and try something different, equally correct, and possibly better or more interesting than what's written in the manual. You come up with ways to extend a few of the labs in an interesting, constructive and structured way.</p>	
<p>F-level performance is seriously deficient. You're confused about how instruments are used (do they measure or source?), and how to use them. You're not aware of the logical progression required for the experimental procedure (why do we have to do X before doing Y?). You do some work, but it's clear your partner is consistently doing most of it, or always correcting yours. You may have suggestions; they don't make sense physically or obviously don't complement the experiment.</p>				