Here is a list of what you should generally include in your notebook. It is not necessarily an exhaustive list and so I would also refer to the class website for Jake's guidelines on what defines a good notebook (this document is based on those guidelines and my experience with marking notebooks last year):

- Your notebook should be written in ink; any plots you print and put into your notebook should be taped or pasted in (no staples)
- You should include a brief statement describing the purpose of the experiment for each report in your notebook; it should concisely describe what you are trying to measure or trying to accomplish in this experiment (it doesn't have to much longer than a sentence, maybe two)
- While an explicit list of supplies and equipment is not needed, you should introduce the lab equipment you used naturally through your procedure
- Your procedure should describe everything **you** did and not what the lab manual told you to do; moreover, the procedure should be written in complete sentences and not as a numbered list
- It should be apparent through your procedure how **all** measurements were made
- The procedure should be written in past tense, e.g., "We connected the leads of the multimeter across the capacitor..." or, "We measured the peak-to-peak voltage of the signal using the oscilloscope..."
- A labelled diagram of your experimental setup should be included; for the electronics lab, a schematic of the circuit you used should be included (as well)
- Figures and tables should be neatly labelled with a short description (i.e., a figure heading), e.g., "A plot of the voltage across the 1 μF capacitor in our RC circuit versus time..."
- Plots should have labelled axes with units included; labelled columns and units must also be included in tables
- **All** measurements (and the quantities you derive from them) have an **uncertainty** (or error) included with them; if a number shows up anywhere in your notebook, it likely has an uncertainty, e.g., "The voltage across the 50 kΩ resistor was measured to be 0.530 ± 0.005 V..."
- The nominal uncertainties of resistors can read off of the components themselves using the colour codes; capacitors typically have a nominal uncertainty of ± 10%
- The uncertainties associated with the measurements provided by test equipment like multimeters are given by the specifications of the manufacturers, e.g., for the Agilent 34410A digital multimeter measuring DC voltage on the 100.0000 mV range (meaning it only measures up to this max value on this particular range), the uncertainty in a measurement is stated to be (assuming the device was calibrated within 1 year):

$$\text{uncertainty} = 0.0050 + 0.0035,$$

The first number pertains to a percentage of your measurement and the second number is simply added to this result; if you measured a voltage to be 64.0321 mV on this range, then the uncertainty associated with your measurement is:

$$(0.0050\%)*(64.0321\text{ mV}) + 0.0035\text{ mV} = 0.0067016...\text{ mV},$$

Which you round to one significant figure; in our case, we would round this number to 0.007 mV and round our measurement to the same order, noting our measurement with its uncertainty to be 64.032 ± 0.007 mV

- You should explain how you obtained your uncertainties, i.e., did you obtain the uncertainty using the manufacturer's specifications or did you have to approximate the uncertainty (sometimes this is necessary when measuring frequency using the oscilloscope; I have taken the uncertainty in the frequency reading to be the approximate variation in the reading as it fluctuates)
- You should include sample calculations (but you only need to show one for a given type of calculation done over and over again in a particular experiment); error propagation must also be performed when calculating quantities from existing quantities with uncertainties
- It should be clear how you analyze your data (i.e., describe your analysis in words)
- A comparison of your experimental results to the expected results should be included in your Discussion and/or Conclusion, e.g., "We found the time constant of our RC circuit to be 0.00105 ± 0.00006 ms and this number agreed [or did not agree] with the expected value of 0.0010 ± 0.0001 ms..."; if quantities do not agree, try to explain why
- Your Conclusion should provide a brief overview of the purpose of the experiment and its methods as well as your experimental results and whether the purpose was met

My grading is roughly based on:

-- / 2.5 for Purpose and Procedure (abbreviated P/P)
-- / 2.5 for Quality of Data and Presentation (abbreviated QoD/P)
-- / 2.5 for Analysis and Results (abbreviated A/R)
-- / 2.5 for Discussion and Conclusion (abbreviated D/C)

For a total of 10 marks per experiment.