EE420 Lab - week 9 - Active filter characterization

Preliminary:

For this lab, you need to build and test a simple filter using an op-amp. We will provide the schematic, but you may need to tweek it in.

In the lab:

You need to build 3 variants of this filter, with R5 = 1k, 27k, and 33k.
You need to characterize these filters. We need to know that they perform properly. You need to measure frequency response, etc., and verify that they work properly as filters.

What to hand in:

Your report should consist of the following sections:

1. A cover sheet, with schematic and important measurements as might be presented on a manufacturers data sheet
2. More detailed summary and discussion, including acknowledgements
3. Journal
4. Analysis
5. Simulation

The summary section:

The summary should have a table of the measurements in data-book form. It should fit on one page, and show at a glance what the actual and expected measurements were.

The analysis section:

As part of your report, analyze the filters. (Determine their transfer function Vout/Vin) Plot the frequency response based on your transfer function. (Use Octave or Matlab.) Determine the poles and zeros. Simulate them. For each filter, you will have 3 versions of the frequency response. Overlay them and comment on them.

The detailed summary section of the report should explain any differences between predicted and actual measurements, and how you would do the experiment different if you could do it again.