PRELAB
1. Referring to LMF100 data sheet, design a 2nd-order bandpass filter with $f_0 = 5$ kHz, quality factor of $Q = 20$, and passband gain of $H_{bp} = 0$ dB. Draw the complete schematic for the testing including all of the connections for the chip.
2. Design a 4th-order Butterworth lowpass filter with cut-off frequency of $f_c = 5$ kHz, and passband gain of $H_{lp} = 0$ dB. Draw the complete schematic for the testing including all of the connections for the chip.

LAB PROCEDURE
1. Build the bandpass filter, and measure its magnitude response. Choose a reasonable frequency range and take sufficient data to fully characterize the response. Determine $H_{bp}$, $Q$, and $f_0$, compare it with the target values, and comment on differences.
2. Build the lowpass filter, and measure its magnitude response. Choose reasonable frequency range and take sufficient data to fully characterize the response. Determine $H_{lp}$, and $f_c$, compare it with the target values, and comment on differences.