### ELEC 5705 RF Systems Design: Assignment #4

Due Nov. 28th, 2017

In this assignment you will continue working with the same RF signal that was provided in assignment #3 and you will need to make use of the models that you developed in assignments #1 and #2.

Find Bryan using a superhetrodyne radio with a first LO at 110MHz. Use the highest NF, phase noise, lowest linearity etc. that you can. The lower the performance requirements of your radio the better you will do. This radio may be used to receive other channels at other times that are located anywhere from 90-100MHz.

As much as possible calculations should be used to help explain all design choices and should be compared against simulation. Include in your report a block diagram of your radio which includes performance specifications (power consumption, IIP3, NF, etc.) for all the blocks (LNAs, filters, mixers, etc.) for all blocks used.

Hints/Tips:

As a start you will need to determine what SNR is required to hear Bryan. This will need to be done experimentally by increasing the SNR until Bryan is no longer detectable. This will set your maximum SNR for this assignment.