

# EE 105 **Feedback control systems**

Frequency response & Bode plots, part 2

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**Let's look at phase**

# Sketching the phase of a transfer function

**Relationship to damping ratio?**

# Frequency response and stability

The imaginary axis on the s-plane is  $j\omega$ ...  
so what happens if the poles are on that axis?

# An op-amp uses feedback

Examine the LM741 datasheet (or another op-amp you like)

What are its properties as a control system component?

Suppose we had a simple non-inverting amplifier;  
is there a gain for which this circuit becomes unstable?

What if there is inductance/capacitance in the loop?