Lecture 24 -- Feedback in Amplifiers

What are the advantages of feedback that justify the risk of instability

What is open-loop gain? Closed-loop gain? How much steady state error do you get for a given open loop gain and feedback factor?

How can feedback modify input and output impedance of amplifiers? What's a quick pnemonic to identify how impedance will be affected?

Draw feedback in a single ended amplifier and as it appears in a single stage amplifier

What is stability?

How can we have observed instability even though our systems so far have been designed with left half-plane poles and no explicit feedback?

What is a suitable dynamic model for an uncompensated op-amp? A compensated op-amp?

What tool do we usually use to assess stability in op-amps? What's a rough derivation for it?

Does L(jw)=-1 guarantee instability?

What is the maximum stable gain of an uncompensated op-amp in unity gain feedback if the poles are separated by a factor of 100?

Where does the gain-bandwidth product come from in an op-amp?

Bonus: fast Bode plot drawing
Bonus: fast root-locus plot drawing