

# Notes in ECEN 5448

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## Lecture

Effects of quantization

how do the characteristic equation coefficients  $a_0, a_1, \dots, a_n$  effect the pole locations  $p_0, p_1, \dots, p_n$ .  
calculate sensitivity.

rounding vs truncation  
keeping track of error.

stuff we don't cover:  
stochastic analysis of quantization error  
limit cycles and dither

## sample rate selection

trade-offs  
absolute lower bound  
smoothness  
delay  
disturbances  
quantization  
antialiasing

need to sample at least 2 times the bandwidth you want  
typically  $20 \leq \frac{\omega_s}{\omega_b} \leq 40$ .