Microelectronic Circuits by Sedra & Smith (& Carusone & Gaudet)

Lecture
Recorded lectures will be made available via Canvas. I just taught this class in Winter and recorded it, so I will use those recordings, and I will fill in (provide new recording) on some dates where recording was unsuccessful.

HW
Homework will not be graded based on right or wrong answers, but on the level of effort shown in what you submit each week. Each assignment is to be submitted via Canvas (scanned PDF only) by/before the due date at 10am. No late homework will be accepted. Homework grading will be done using one of three scores: 10, 5, or 0. A complete/good effort and understanding demonstrated will receive a 10; insufficient work (or copying of solutions) will receive a 0; and a 5 for something in between.

Exam
For this term, exams are open book/notes, but you are not allowed to discuss the material with anyone during the exam. Extra 10 minutes will be added to exam time, to scan your work into a single PDF and upload it on Canvas. If you do not have a scanner, I recommend using a free app called FastScanner (practice using it for HW, since you will be allotted just 10 minutes extra for exams).

OH
Please ask specific questions at office hours, referring to a copy of my own writing (e.g. posted lecture notes, homework solutions...). If no one shows up to Zoom meeting in the first 10 minutes, the host will end the meeting/OH. And when there are no more questions, we will also end Zoom meeting/OH at that point.

Grade
Homework (six of them) 30% (5% each)
Midterm-1 20% (Tuesday Apr-28 10-11:20am – upload closes at 11:30am)
Midterm-2 20% (Tuesday May-26 10-11:20am – upload closes at 11:30am)
Final 30% (Wednesday Jun-10 12-1:50pm – upload closes at 2pm)

Academic Dishonesty (cheating) is defined as an act of deception in which a student seeks to claim credit for the work or effort of another person, or uses unauthorized materials or fabricated information in any academic work or research, either through the student's own efforts or the efforts of another. [See Code of Student Conduct document at http://studentlife.oregonstate.edu/studentconduct]. Exams: Discussing/communicating with others or copying from others/friends... Homework: Copying (whole or partial) solutions, copying (whole or partial) another student’s work... What will be the penalty? You will receive 0% for that and potentially for the entire course. You will also be reported to the university.
Your reading guide for the course...
Section numbers are from the eighth edition, but you can find the same topic in older editions.

Course overview; ECE 322 review
  5.1 Device structure and physical operation (MOSFET)
  5.2 Current-voltage characteristics (MOSFET)
  5.3 MOSFET circuits at DC
  6.1 Device structure and physical operation (BJT)
  6.2 Current-voltage characteristics (BJT)
  6.3 BJT circuits at DC
  7.1 Basic principles (transistor amplifiers)
  7.2 Small-signal operation and models (transistor amplifiers)

Single stage amplifiers
  7.3 Basic configuration (transistor amplifiers)
  7.4 Biasing (transistor amplifiers)
  7.5 Discrete-circuit amplifiers (transistor amplifiers)

Multi stages & building blocks
  8.2 IC biasing: current sources and current mirrors
  8.3 The basic gain cell
  8.4 The common-gate and common-base amplifiers as current buffers
     Parts of 9.* (differential and multistage amplifiers)

Frequency response
  10.1 High-frequency transistor models
  10.2 High-frequency response of CS and CE amplifiers
  10.3 The method of open-circuit time constants
  10.8 Low-frequency response of discrete-circuits CS and CE amplifiers

Feedback
  11.*

Oscillators/feedback & stability
  15.1 Basic principles of sinusoidal oscillators
  15.2 Opamp-RC oscillator circuits
  15.4 Nonlinear oscillators or function generators

Digital logic
  16.1 CMOS logic-gate circuits
  16.2 Digital logic inverters
  16.3 The CMOS inverter
  17.2 Transistor sizing (Digital design: power, speed, and area)