1. Attribution and caveat
    a. Credit for most of these notes goes to Sean Davis of UC Davis
        i. Sean taught ECS 390 for close to 20 years
        ii. Made some additions of my own based on my own experiences
    b. These are guidelines, not absolute laws
        i. **Anything in bold** are things I feel are extremely important
        ii. If you continue to teach, you will settle into your own system
        iii. Student feedback is great for figuring out what you're doing right and what needs improvement

2. Preparing beforehand
    a. Do not go into a discussion unprepared!
        i. Usually spend 2-3 hours preparing for each hour I present
        ii. Preparing for this lecture was no exception
    b. Prepare notes to bring with you
        i. Have more material on your notes than needed
        ii. Know the material well enough so you're only glancing at your notes on occasion
    c. Bring (or provide beforehand) handouts for anything that takes a long time to copy from the board
    d. Give examples, examples and more examples
    e. Active learning strategies work wonders
        i. Have people gather together in groups to work on questions
        ii. Worksheets help students focus on their weaknesses

3. First day
    a. Write your name and course at the center of board when you enter
    b. Give a short (5 minute) autobiography
        i. Focus on your own time in undergrad and your connection to the course you're teaching
        ii. Set the tone for the rest of the class, make yourself seem friendly and approachable
    c. Get people to ask questions on the first day
        i. First day sets the tone for the rest of the course
        ii. Want students to be active and involved in their own education

4. Schedule
    a. Get there early, if possible
        i. Chat with students and see if they have any concerns
        ii. Many times, these concerns are the same exact ones that other students have
    b. Write topics to cover on the far-left side of the board
        i. Write more topics than necessary
        ii. Make it clear that you won't get to everything
    c. Be flexible on exact schedule based on student feedback
        i. Ask for other topics
        ii. Skip or shorten a topic if there's little interest
            1. If there's a subtlety that they don't know, then go through it
            2. If you can't generate interest, skip that topic
        iii. Lengthen a topic if there's a lot of interest
            1. Remember that this is a zero-sum game!
            2. Don't shortchange another important topic that you're going to cover later
            3. Offer to meet after class or in office hours (OH) for topics that are going long
            4. Do the same if only a few students are interested in a topic
    d. Plan on staying afterwards for student questions and important topics you didn't get to

5. Mechanics
    a. Student notebooks and laptops have limitations, so remember that
        i. Students can't always copy down as fast as you can write
        ii. They *definitely* can't copy down as fast as you can talk
    b. Don't just read off a document camera or PowerPoint
        i. Document camera (doc cam) and PowerPoint presentations are very passive
        ii. Your students can read, just reading off the display is a waste of their time and yours
        iii. One idea: make your PowerPoint an outline and go into further detail from there
    c. Provide hard copies of anything presented, make sure students don't have to spend time copying
        i. Use the doc cam or PowerPoint for anything that would take too long for you to draw
        ii. As mentioned previously, though, don't just read from either of them!
    d. Speak loudly and project your voice
        i. Students at the back have difficulty hearing your voice
            1. I'm half-deaf and sometimes I have difficulty hearing when sitting at the front!
        ii. Ask students to see if you're speaking loudly enough
        iii. Ask them to tell you when you're not speaking loudly enough
        iv. If you have difficulty projecting your voice, consider using the room's wireless microphone

6. Board usage
    a. Write topics to cover on the far-left side of the board, cross them out as you finish a topic
    b. Work in columns on the board from top to bottom, left to right
        i. If you need to restart, erase from the left (the oldest material)
        ii. Erase whole columns at a time
    c. If you need to make a correction, ~~cross out like I'm doing here~~, don't erase
    d. Talk as you write
        i. Make sure to speak extra loudly since you're facing the board
        ii. The above doesn't apply if you're using a wireless microphone
    e. Write large and legibly
        i. Even medium-size writing is extremely hard to read from the back in a large room
        ii. Don't write in cursive if your cursive is hard to read
        iii. Don't squeeze your words in at the bottom of the board, just go back to the top
        iv. If you must insert information, draw a line from an open space on the board
            1. Your students will do this on their notebook anyway

7. Questions that you and students ask
    a. Never just dismiss a student's question
        i. Doing this is a good way of making students unwilling to participate in class
        ii. If you don't have time to cover or it's not very relevant, have them ask after class or in OH
    b. Never respond sarcastically to a student's question
        i. In the same vein as above, you risk alienating a student when you do this
    c. Make your own questions to students as concrete as possible
        i. Compare the following two questions
            1. "Are there any questions?"
            2. "Are there any questions about pointers in C++?"
    d. Don't ask questions with many answers when you only have one in mind
        i. Just tell them what you're thinking
    e. Wait for questions and answers after finishing a topic
        i. Gives students time to process and think of a potential question
        ii. Good way of doing so: count to 10 silently

f. Always repeat student questions and answers
   i. Students speak at a normal room voice
      1. Other students won't be able to hear those questions or answers
      2. By repeating questions and answers, everyone in the classroom is on the same page
   ii. Rephrase questions and answers appropriately if needed

g. Reward participation by being positive about all questions and answers
   i. "Good question."
   ii. "Excellent answer."
   iii. "Almost right."

h. If the answer is completely wrong, try to ask questions to guide that student to the correct answer
   i. "How would that handle a user entering zero?"

i. If you're unsure or don't know the answer to a question, be honest and admit it
   i. Ask for help from the class
   ii. Promise to provide the answer at the next discussion, or on the class' message board
   iii. Nobody knows everything, the same applies for you
   iv. Your students will appreciate the honesty

8. Tips for non-discussion duties
   a. Grading
      i. Create and write down objective grading criteria
      ii. Review some of the student answers at the start before grading
         1. Get an idea of what student answers look like
      iii. Consider using a grading system like Gradescope
         1. Allows you to grade online, don't need to carry papers around
         2. gradescope.com
      iv. If grading on paper, don't use a red pen
         1. Use another color, like green
         2. Red immediately evokes negative feelings when it comes to grading
      v. If you discover potential academic misconduct, report it to your instructor
         1. MOSS is extremely good at catching this
         2. theory.stanford.edu/~aiken/moss
   b. Problem sets and programs/projects
      i. Do the problem set or program a day after you write it
      ii. Figure about 3-4x time for a student to complete a problem set compared to you
      iii. Figure about 4-6x time for a student to write a program/complete a project
   c. Message boards
      i. Make extra time just before a due date or exam
      ii. Being visible on the message board is a good way for students to notice your contributions
   d. Office hours
      i. Don't be late, and don't slack off in the middle!
         1. This is the one sure way to get fired
      ii. For programming classes where you're helping in the CSIF, make a sign-up list on a whiteboard
         1. Have people write down their name and the room they're in
         2. Allows students to not have to track you down
         3. They can focus on working on their program while you're helping others
      iii. For large groups, use round robin and give everybody a chance to ask a question
         1. If somebody hasn't been asking questions, ask them individually if they have questions
         2. Students can feel intimidated by asking questions in a large group

9. Your duties as a TA
    a. **You are not independently responsible for creating assignments, tests, or giving lectures**
        i. Both you and the instructor must agree if you're going to be independently responsible
        ii. The final responsibility for course content lies with the instructor, not you!
    b. Grading written homework, quizzes, examinations, programs, and projects
        i. Writing keys for each of the above
        ii. Creating a fair grading rubric for everything you grade
    c. Responding to the class, either through email or on the class' message board
        i. Canvas, Piazza, Slack, so forth
    d. Helping prepare problem sets and programming assignments
    e. Helping review quizzes and examinations
    f. Holding office hours
    g. Leading discussion sections
    h. Reporting suspected student academic misconduct to your instructor
        i. You are *not* responsible for handling this on your own

10. Availability and time spent
    a. **You should not be exceeding 10 or 20 hours a week on average (depending on your percentage)**
        i. Your TA contract has limits on how many extra hours a week you can spend working past 10/20
        ii. You should not be working more than 110/220 hours for the quarter total
        iii. Let Jessica, Alyssa, or me know if you are being overtaxed!
    b. **You need to be available the entire quarter if you accept a TA position**
        i. You must be available for a meeting before the quarter starts if your instructor requests it
        ii. Inform Jessica, Alyssa, and your instructor if you're on vacation during a quarter you're TAing
        iii. The same applies if you're going to a conference or flying out for an interview
        iv. Your job ends 3 business days after the final, or when you complete your duties
            1. Whichever is sooner is the one that applies
            2. Don't leave in the middle of the quarter or before the final without any warning
            3. Doing so is a good way to get blacklisted by an instructor

11. Student evaluations
    a. Student evaluations for the CS department are submitted online
    b. You can see all your evaluations online on the same system you'll submit your evaluations with
        i. eval.ucdavis.edu/instructor
        ii. You can see all the ratings and comments that students have given you for a class
    c. **You need to maintain a 3.0 / 5 average rating on student evaluations**
        i. 3.0 corresponds to "satisfactory" on the evaluation scale
        ii. If your average rating is below a 3.0, then you'll need to complete some remedial training
            1. Rarely happens, if ever
            2. Intent is for you to improve, not to punish you

12. Resources available on campus for student instructors
    a. Center for Educational Effectiveness (CEE) is the biggest resource for improving your teaching
        i. cee.ucdavis.edu
        ii. They hold workshops, do consultations, and even offer a course you can take
    b. The CS department website has a page that lists some of the other resources
        i. www.cs.ucdavis.edu/graduate/current/teaching
    c. Your instructor for the course you're TAing for is a great resource
    d. If you're serious about wanting to improve, I'm willing to meet you halfway