We will have an in-class midterm on Monday Feb 22. Closed books, but you may bring one page of notes. It will be due at the end of class. The exam will focus on the first 4 chapters of the book. There's quite a bit in there. Here's what to focus on. Questions will cover a proper subset of these topics.

From chapter 2: Be familiar with assumptions and claims as used in that chapter.
Chapter 4. The key point of chapter 4 is that interactive computing changes social interaction. Study up on remote conversations, tele-presence and co-presence.
There's a question that asks you to think about immersive virtual reality using immersive head mounted displays. You can answer the question perfectly without being an expert in either or both of those topics, but you might be more comfortable with the question if you spend some time reading about them before hand. The wikipedia articles are pretty good.

## Chapter 1:

**Interaction Design:** main aim is to reduce negative aspects of the user experience while enhancing the positive ones. Designing interactive products that are easy, effective and pleasurable to use from the users perspective.
**Usability Goals:** Effectiveness, Efficiency, Safety, Utility, Learnability, Memorability

### Design Principles:

**Visibility:** Interactive parts and items should be visible. Knobs, switches and buttons are intuitive and easy to use. Invisible controls are not intuitive and harm the interaction.
**Feedback:** Related to visibility feedback is informing the user in some way that an action has been completed. Using audio, visual, tactile, verbal or some combination of queues to let them know something occurred.
**Constraints:** Determining ways to limit or restrict user input to things that can be done at the current time (like greying out options that are not currently viable choices)
**Consistency:** Similar options and elements for completing similar tasks.
**Affordance:** Giving clues about how to operate something making it more natural to figure out. The easy of figuring out what to do with it if never seen before.

## Chapter 2:

### Interaction Types:

**Instructing:** when user issues instructions to a system. Can be done in many ways.
**Conversing:** where the users have a dialog with the system. Users can speak or type questions to which the system replies.
**Manipulating:** User interacts with objects by manipulating them in real or virtual space.
**Exploring:** Where users move through a virtual environment or 3D space. Allows users to capitalize on the familiarity of moving.

## Chapter 3:

### Cognition In Design:

**Experiential:** (aka Fast Thinking) State of mind in which we perceive, act, and react to events around us intuitively and effortlessly. Requires a certain level of expertise and engagement.
**Reflective:** (aka Slow Thinking) involves mental effort, attention, judgement, decision making. Leads to new ideas and creativity.
**Cognition Processes:**
**Attention:** Selecting things to concentrate on
**Perception:** How information is gathered in an environment (grouping helps people infer meaning and connect tasks)
**Memory:** Recalling knowledge to allow us to act appropriately. Recognition is easier than recalling
**Learning:** Prefer to learn through doing. Data linking and Internet.
**Reading, Speaking, Listening:** Forms of language process. Spoken can be hard to follow if long, does not allow rereading. Accentuate when using speaking. Allow enlarging of text.
**Problem Solving, Planning, Reasoning, Decision Making:** reflective cognition. Thinking about and making a decision based on the information available.

### Cognitive Frameworks:

**Internal:**
**Mental Models:** People build a model of how they think something works and use that model to interact with it. If the model if flawed it can cause a misuse of the product. The more accurate their mental model the more likely they are to understand what to do.
**Gulfs of Execution and Evaluation:** Gaps that exist between the user and the interface. Execution – distance of user to the physical system. Evaluation – distance of the physical system to the user. Fix by designing physical systems that psychological characteristics of the user.
**Information Processing:** Allows us to think of the brain as an information processor to help us make predictions about human performance.
**External:**
**Distributed Cognition:** Describing a cognitive phenomena across individuals, artifacts, and internal and external representations. Describing using people, the artifacts they use and the environment they are working in.
**External Cognition:** Explaining the cognitive process involved when interacting with external representations (books, pictures etc)
**Embodied Interaction:** Understanding interaction in terms of practical engagement with the social and physical environment.

## Chapter 4:

**Remote Conversations:** Non face to face interactions. People have adapted how they converse on these platforms to make up for the loss of elements in face to face communications. Many of these platforms allow for types and speed of communication that is not possible in normal face to face conversation.
**Tele-presence:** There are many forms and times where face to face will be preferable for communication. Telepresence is the work on making it seem like someone who isn't there physically is in the room. Life size video chat, Robots, Screens at correct height.
**Co-presence:** Allowing for coordinated interaction without physical presence.
**Physical Coordination:** Remote ability (or seen from afar) to use physical objects or waving/hand gestures to relay meaning to each other.
**Awareness:** Knowing who is around, what is happening and who is talking to whom. Noting what they are doing and maybe their mood.
**Shareable Interfaces:** How can we use tech to exploit existing forms of coordination awareness mechanisms. Digital Tabletops. People interacting with a digital system in such a way as to help them overcome anxiety or embarrassment of interaction. System in public places that connect you to others around you using it in a way that seems more natural. Blob game where people reconnect small blobs by pushing them with their bodies. Requires teamwork.