CIS 1200 NOTES

CHAPTER 1: Becoming Computer Literate

Computer Literate→ Being familiar enough with computers that you understand their capabilities and limitations and you know how to use them.

- Being computer literate allows you to:
  - Use a computer more wisely and be a more knowledgeable consumer.
  - Computer literate employees are sought after in almost every career.
  - Will help you understand future technologies

Information Technology→ A field of study focused on managing and processing information and the automatic retrieval of information. Includes; computers, telecommunication and software deployment.

- The fastest growing career industry is computers

- **Data Mining→** The process of searching huge amounts of data with hope of finding a pattern and used to separate anomalies from the trends. For example large retailers often study the data gathered from register terminals to determine which products are selling on a given day and in a specific location.

- UPS tracks packages with tracking systems. The company creates a smart label for the package. The smart label contains a **MaxiCode.** The maxicode is a specially designed scannable sticker that resembles an inkblot and contains all the important info about the package. When package is handed in UPS scans MaxiCode using handheld devices.
- These handheld devices use **Bluetooth technology** (type of wireless communication) to transmit the scanned data through radio waves to a terminal.

- Art and dance is also using computers to a further level. For example computer that paints your movements as you move closer to it.

- Since video games are best developed for a local market by people native to that market, game development will probably still in US instead of being **offshored (sent to other countries).**
- Teachers must have knowledge of computer to same extent as student

- Technology is often used to improve people's experiences at museums. For example NY museum of modern art provides autoguides and podcasts.

➢ Law:

- Computers are being used in police cars and crime labs to solve an increasing number of crimes. For example, facial reconstruction systems like the one shown in Figure 1.12 can turn a skull into a finished digital image of a face, allowing investigators to proceed far more quickly with identification.
- You can search criminals online on database.
- To fight modern crime, a law enforcement specialty called **computer forensics** is growing. This specialty analyzes computer systems with specific techniques to gather potential legal evidence.
- Computers are also used in training laws enforcement officers to be more effective. Dr. Paul Ekman has spent a career studying *microexpressions*, brief flashes of emotion. When a person is being deceptive, microexpressions reveal true emotions in his or her body language.

Digital Home→ Having an appropriate computer and digital devices that are all connected to a home network. You need a **media computer:** A computer is the nerve center of any digital home, allowing you to interface with all the different digital devices you have connected to the network.

➢ Military Careers:

- Many soldiers are trained computer specialists. The ASVAB (Armed Services Vocational Aptitude Battery) exam is a requirement for entry into the U.S. armed services, and the scores on various sections of this exam determine if you are eligible to enlist. The test can involve an itouch, web app or online tutorial. Knowing how to use these things can give you an advantage.

➢ Agriculture:

- Food outbreaks can be managed with the use of **radio frequency identification tags (RFID tags)**. These RFID tags are small versions of the roadway electronic toll systems used in many states to collect tolls automatically as drivers pass through toll stations. Each tag looks like a tiny button and is attached to a cow's ear. It contains a microchip that holds a sequence of numbers used to identify that animal. When the cow walks past a panel reader, its location is automatically recorded and tracked in a database. If cow is identified with a disease its recorded movements can be checked in the database that stores the RFID information. It is then simple to identify the exact food lots where that and other animals ate.
- Growers can watch cranberry bogs grow in the cold with a web-based system to make sure they don't get destroyed by frost.

➢ Automotive Technology:

- Auto manufacturers are producing cars with lower emissions. This has increased the number of sensors and computer CPU systems needed in cars. automotive technicians must be able to update documentation through the Internet, use computer databases to

learn about common problems and solutions, and use computer systems to interface with and run diagnostics on all the different automotive computer systems.

- Medicine:

- A man who could no longer move could use his brain to move robotic arm.

Med students now have access to better training opportunities thanks to computer technology called a **patient simulator.** Patient simulators are life-sized, computer-controlled mannequins that can speak, breathe, and blink. They have a pulse and a heartbeat, and they respond just like humans to procedures such as the administration of intravenous drugs. Medical students can train on patient simulators and experience firsthand how a human would react to their treatments.

The Physiome Project began as the brainchild of the Bioengineering Institute in Auckland, New Zealand. It now is a global **public domain** effort (not covered by copyright) in which bioengineers are creating realistic computer simulations of all systems and features of the human anatomy.

In the operating room, computer literacy is now a must. Surgeons are using computer- guided robots to perform surgery. Humans are limited by their manual dexterity and can have trouble making small, precise incisions. Robots can help.

The goals of biomedical chip research are to provide technological solutions to physical problems and to provide a means for positively identifying individuals.

Nanotechnology→ The science of using nanostructures to build devices on a very small scale.

- Psychology:

Affective computing→ Computing that relates to emotion or deliberately tries to influence emotion. Most computers you are familiar with can perform calculations and do the tasks they are programmed for much faster than humans can, but they fail miserably in telling a good joke or modifying their behavior based on your frustration.

Digital Divide→ The discrepancy between the "haves" and "have-nots" with regards to computer technology.

- As computers become more and more embedded in our lives, all of these challenges will grow. Making the personal decisions required to efficiently, legally, and safely maneuver through cyberspace is tied to the knowledge and awareness of the user.