

# CS 105 Overview

Based on A Gift of Fire  
Third edition  
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Chapter 1: Unwrapping the Gift  
Original Slides prepared by Cyndi Chie and Sarah Frye

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## Issues to Consider

- Rapid Pace of Change
- New Developments and Dramatic Impacts
- Issues and Themes
- Ethics

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## Rapid Pace of Change

- 1940s: The first computer is built
- 1956: First hard-disk drive weighed a ton and stored five megabytes
- 1991: Space shuttle had a one-megahertz computer
- 2006: Pocket devices hold a terabyte (one trillion bytes) of data
- 2006: Automobiles can have 100-megahertz computers

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**Rapid Pace of Change:  
Questions to think About**

- What devices are now computerized that were not originally? Think back 10, 20, 50 years ago.
- What are new the new computerized devices now?
- What do you think will be computerized in the future? 5, 10, 15 years from now?

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**New Developments**

Blogs (Word made up from 'web log'):

- Began as outlets for amateurs who want to express ideas or creativity
- Appealing because present personal views, are funny and creative, and present a quirky perspective on current events

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**New Developments (cont.)**

Blogs (cont.):

- Now used as alternatives to mainstream news and for business public relations
- Popular blogs have 100,000 to 500,000 readers per day and can peak at several million views per day

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### New Developments (cont.)

#### Video Sharing:

- Rise of amateur videos on the web
- Boom of websites like Youtube and Myspace
- Many videos on the web can infringe copyrights owned by entertainment companies

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### New Developments (cont.)

#### Cell Phones:

- Can now be used for travel, last minute planning, taking pictures and downloading music
- Talking on cell phones while driving is a problem
- Cell phones can interfere with solitude, quiet and concentration
- Cameras in cell phones and privacy issues

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### New Developments (cont.)

#### Social Networking:

- First online social networking site was [www.classmates.com](http://www.classmates.com) in 1995
- Myspace, founded in 2003 had roughly 100 million member profiles by 2006
- Facebook was started at Harvard as an online version of student directories

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### New Developments (cont.)

#### Collaboration:

- Wikipedia, the online, collaborative encyclopedia
- Open Directory Project (ODP)
- Collaboration between scientists in different states or countries
- Watch-dogs on the Web

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### New Developments (cont.)

#### E-commerce and Free Stuff:

- Free stuff on the web: email, books, newspapers, games, etc.
- www.Amazon.com started in 1994 and 10 years later annual sales reached \$8.5 billion
- TV show episodes are available to view on the Web

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### New Developments (cont.)

#### Artificial Intelligence (AI), Robotics, and Motion:

- AI suited to narrow, specialized skills
- Robotic devices often special-purpose devices, and may require AI to function
- Motion sensing devices are used to give robots the ability to walk, trigger airbags in a crash and cushion laptops when dropped

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### New Developments (cont.)

#### Tools for Disabled People:

- Restoration of abilities, productivity and independence
- Screen readers and scanners
- Speech recognition
- Prosthetics and motion sensors

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### New Developments (cont.)

#### What's Next?

- Medical records on chips attached to medical bracelets
- Biological and computer sciences will combine new ways to insert micro-processors or controlled devices on human bodies

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### New Developments (cont.) Discussion Question

- What changes and new developments do you expect in the next 50 years?
- How will life be different than it is today?
- Perhaps a better question is, "How should we decide what to develop?"
- Or "How should we decide if what we develop is good?"

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### Issues and Themes

Issues:

- Unemployment
- Alienation and customer service
- Crime
- Loss of privacy
- Errors
- And more. Ideas?

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### Issues and Themes (cont.)

Themes:

- Old problems in a new context: crime, pornography, violent fiction
- Adapting to new technology: thinking in a new way
- Varied sources of solutions to problems: natural part of change and life

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### Issues and Themes (cont.)

Themes (cont.):

- Global reach of net: ease of communication with distant countries
- Trade-offs and controversy: increasing security means reducing convenience
- Difference between personal choices, business policies, and law

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## Ethics

What is Ethics:

- Study of what it means to “do the right thing” and how to decide what the “right thing is”
- Assumes people are rational and make free choices although the notions of rationality and choice need careful examination
- Rules to follow in our interactions and our actions that affect other or the principles that help us to decide what the rules should be

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## Ethics (cont.)

Ethical Views:

- Deontological - Principles
- Utilitarianism - Consequences
- Rights – Noninterference and provision
- No simple answers
  - Where do these come from?
  - How are decisions made about alternatives?
  - Can groups have ethics?

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## Ethics (cont.)

Important Distinctions:

- Right, wrong and okay
- Negative rights (liberties)
  - The right to act without interference
- Positive rights (claim-rights)
  - An obligation of some people to provide certain things for others

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## Ethics (cont.)

### Important Distinctions (cont.):

- Difference between wrong and harm
- Personal preference and ethics
- Law and Ethics

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