**Chapter 17**

**Making Decisions about Computers, Information, and Society**

**A Guide to this Instructor’s Manual:**

We have designed this Instructor’s Manual to supplement and enhance your teaching experience through classroom activities and a cohesive chapter summary.

This document is organized chronologically, using the same headings that you see in the textbook. Under the headings you will find: Lecture Notes that summarize the section, Teaching Tips, Class Discussion Topics, and Additional Projects and Resources. Pay special attention to teaching tips and activities geared toward quizzing your students and enhancing their critical thinking skills.

In addition to this Instructor’s Manual, our Instructor’s Resources also contain PowerPoint Presentations, Test Banks, and other supplements to aid in your teaching experience.

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| **At a Glance** |

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**Overview**

Chapter 17 explores a variety of social and ethical issues related to information technology. In the process, it introduces a number of tools from ethics for use in evaluating social issues. It demonstrates the use of ethical reasoning methods on specific case studies about computing. It discusses issues including copyright, electronic surveillance, and hacking. The chapter ends with a discussion of issues an individual may face related to computing, including cyberbullying, sexting, and the privacy of information online.

# **Learning Objectives**

* Use ethical reasoning to evaluate social issues related to computing
* Understand the issues involved in digitally sharing copywritten intellectual property, such as music, videos, photographs, books, and video game software
* Discuss trade-offs between the rights of personal privacy and governments’ concerns with safety and security
* Provide arguments that support and oppose hackers who claim to be performing a social good
* Describe cyberbullying and why legal remedies are so difficult to apply
* Explain the potential dangers that have arisen from the enormous growth of social media
* Discuss how social media makes it easier to globally disseminate rumors and false information that can have a profound effect on governments worldwide

# **Teaching Tips**

**17.1 Introduction**

1. Emphasize that this chapter is not about the technical aspects of computing.
2. This chapter focuses on the *human* issues lurking behind the technical details.
3. Emphasize a focus on personal privacy, societal issue, and ethics around technology.
4. Prepare students to focus heavily on social media and the enormous impact it has on information access and privacy topics

**17.2 Case Studies**

1. Introduce the term **peer-to-peer file sharing**.
2. The first case study (*Is it Sharing or Stealing?)* relates to the sharing of media files online. Discuss the history of Napster, the first peer-to-peer sharing network that allowed people to download and distribute digital media files, primarily MP3s at the time. Note that file sharing includes music, photographs, and movies, and relates to copyright law.
3. Introduce the term **ethics**, and note that there is a difference between what is legal and what is ethical. This chapter focuses on ethics, rather than legality.
4. Introduce the terms **consequentialism** and **utilitarianism** and develop some simple examples to illustrate them. Carefully describe the utilitarian argument that MP3 copying is morally fine. Go through the utilitarian argument that MP3 copying is morally wrong with equal care.
5. Introduce the term **dialectic** and encourage your students to participate in a discussion.

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| ***Teaching Tip*** | This chapter is a great opportunity to get students discussing and engaging in critical thinking. If leading discussions is not your forte, there are many resources available, e.g., <http://www.schreyerinstitute.psu.edu/Tools/Discuss/> |

1. The second case study (*Legalized Snooping—Privacy vs. Security*) relates to the issue of lawful intercept (LI) systems. Discuss the ease of wiretaps in the past with landline phones and talk about how such things have become more complex with the advent of wireless phones, Voice Over Internet Protocol (VOIP), and other technological advancements.
2. Go over the technology of modern wiretapping carefully and its implications. Talk about the issue of misuse both by government and by hackers, and go over the details of the misuse in Greece in 2004–2005.
3. Introduce the term **analogy**, and describe how we might use analogies for ethical reasoning. Talk about the strengths and weaknesses of using analogies.
4. Go through the details of the first analogy: LI is like requiring everyone to record all their face-to-face conversations. Discuss what fits and what doesn’t fit. Then go through the second analogy: LI is like suspicious activity reporting in banking. Again discuss what fits and what doesn’t fit. Emphasize that the parts that don’t fit are often the interesting and central parts of the original problem.
5. Go through the utilitarian reasoning about the LI issue, based on the outcomes of the analogies. Ask students to identify any additional information that would be needed to make a final decision about the ethical status of LI systems.
6. The third case study is about hackers who see themselves as political activists. Introduce the WikiLeaks and Anonymous organizations and their purposes. Discuss the burglary analogy and the utilitarian argument about costs and benefits of hacking for political purposes.
7. Introduce the term **hacktivism**.
8. Introduce the term **deontology** and examine the hacking issue from its perspective: the duties we humans have to each other. Introduce the two relevant parts of the “Hacker Ethic” and examine them from a deontological perspective.
9. Examine the set of skills for ethical reasoning introduced in this chapter, and the analogy of “paramedic ethics.” Go over the list of questions to be asked when faced with an ethical problem: who are the stakeholders, what is at stake, what are the duties and responsibilities of each stakeholder, are there analogous situations, and how do they clarify the situation?
10. The fourth case study (*Genetic Information and Medical Research*) involves the collection and use of genetic information for medical research. Emphasize that this case study is artificial, though plausible: your doctor wants to collect skin cell samples to send to a research project about genetic diseases. The project belongs to a big pharmaceutical company.
11. Use the questions from the preceding section to guide the discussion. You, your doctor, PHARM CO, and sufferers of the genetic disease(s) are the stakeholders. At stake are your personal information, money, and a possible treatment. Duties and responsibilities are more complicated: go over them carefully, and solicit input from your students. The book suggests the analogies of Red Cross blood donations and for-profit companies that solicit donations for a charity.

**Quick Quiz 1**

1. An ethical approach that emphasizes the change in happiness for everyone is called \_\_\_\_\_\_\_\_\_\_\_\_.

Answer: utilitarianism

1. (True or False) A “dialectic” is a discussion that alternates views from each side of an issue, with the goal of increasing understanding and finding areas of agreement.

Answer: True

1. (True or False) An analogous situation must match the primary situation exactly to be of use.

Answer: False

1. List at least two questions that you should ask when using the “paramedic method.”

Answer: Any two of the following: who are the stakeholders, what is at stake, what are the duties and responsibilities, and what analogies apply?

**17.3 Personal Privacy and Social Networks**

1. Emphasize the individual side of ethics in regards to social media and how devastating it can be when somebody’s privacy is breached.
2. When encouraging students to participate in these discussions, be careful to make the class discussion a safe place for all students, and be sensitive to students who may have experienced some of these issues.

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| ***Teaching Tip*** | To illuminate the ways in which personal information can be collected online, consider a website like this: <http://www.spokeo.com/>. Have students put in their names, or their parents’ names to see what information comes up. |

1. Introduce the term **cyberbullying**, and discuss some well-known cases of it. Introduce the term **sexting**, and discuss the pitfalls for those who engage in it. Discuss the public nature of postings to blogs and social media, and the legal freedom others have to widely disseminate such postings.
2. The second-to-last paragraph in this section contains advice about what NOT to post online. It might be worth providing that text as is.

**17.4 Fake News, Politics, and Social Media**

1. Discuss the term **fake news**, its past and its impact in the world today. Use examples from the 2016 election.
2. Discuss the term unmoderated in regards to “news” stories being published with little to no oversight on the reporting. Talk about how this has affected the conversation around Global Warming and Russia.
3. Talk about some of the forms of Fake News:
   1. Imposter sites
   2. Manipulated content
   3. Fabricated content
4. Talk about “Pizzagate” and how a totally fabricated story caused a firestorm.
5. Talk about issues in fighting fake news, considering the first amendment protect’s individual rights to free speech from the government. Go over the difficulty in bringing civil suits against such purveyors of fake news.
6. Always check the source of seemingly inflammatory news:
   1. Check the author
   2. Check the supporting links
   3. Look at who else is reporting
   4. Consider the intent of the story

**17.5 Conclusion**

1. This is the highest level of abstraction in the study of computer science.
2. Go over in brief the case studies one more time.
3. Talk about the road ahead for computer technology, social media, ethics, and the law.
4. Remind students that just because something is legal, does not mean that it is ethical.

# **Class Discussion Topics**

1. Use the ethical tools from the chapter to discuss the ramifications of electronic medical records. Suppose that there was a nationwide database of electronic medical records, with strong security to try to prevent unauthorized access. What would be the benefits and costs of such a system? Apply the “paramedic method” to analyzing this subject.
2. Compare the different ethical approaches discussed here. How are they similar and how different? How might you choose the best approach for a given situation?
3. What efforts, if any, do you make to preserve your privacy online? Do you share images, videos, and postings publically, or do you limit access? Why have you made the decisions that you have about personal information online? What might you change in the future?
4. Discuss the propagation of fake news. What are some methods of combating it?

# **Additional Projects**

1. Form a group, and research the issues related to anonymity on the Internet. List the major points in favor of anonymity, and those that oppose it. Apply the paramedic method to formulate and analyze these issues.
2. Telecommuting is an increasingly popular work option: people who do their work in their houses rather than at a workplace, at least some of the time. Some groups oppose the growth of telecommuting as a job option, arguing that workers who are at home may work in less safe environments, and may be required to work too many hours, without effective government supervision. Research both sides of this question: both the positives of telecommuting and the negatives. Give an ethical analysis of permitting or requiring employees to telecommute.
3. Do research on the idea that climate change denial is fake news. Look at the science behind it. Investigate claims that it’s not happening and drill down in those claims to find sources for this point of view. What about finding sources for those who support the idea of climate change?

# **Additional Resources**

1. ETSI (European Telecommunications Standards Institute) website about lawful interception: <http://www.etsi.org/WebSite/Technologies/LawfulInterception.aspx>
2. EPIC (Electronic Privacy Information Center) website: <http://epic.org/>
3. Philosophy website about computer ethics: <http://plato.stanford.edu/entries/ethics-computer>
4. Kean University Cyber-Ethics: <http://www.kean.edu/~schandle/Students/DCuento/Teaching.htm>

**Key Terms**

* **Analogy**: Arguing about a problem by comparing it to a related problem, which you claim is very similar in terms of its ethical implications and consequences.
* **Consequentialism**: A school of thought in ethics that focuses on the consequences of an act to determine if the act is good or bad.
* **Cyberbullying**: Humiliating, taunting, threatening, or invading someone’s privacy using the Internet, Web, or other type of electronic technology.
* **Deontology**: The study of duty and obligation; deontological arguments focus on the duties of the person acting, and how that person’s acts impinge on the rights of others.
* **Dialectic**: A discussion moving back and forth between different viewpoints, criticizing each and trying to learn from each.
* **Ethics**: The study of how to decide if something is morally right or wrong.
* **Fake news**: The attempted distribution of misleading formation, slanted opinions, or outright lies to as many people under the guise of being a valid news source.
* **Go viral**: Become widely read and widely distributed via social media.
* **Hacktivism**: Hacking that is intended as political activism.
* **Lawful intercept (LI)**: An automated system built to follow a user from place to place, intercept his or her conversations, and forward them to law enforcement.
* **Peer-to-peer file sharing**: The sharing of files between two equal participants on a network. This is distinct from the client-server model in which the two sides serve very different roles—one side only sending information (the server) and the other side only receiving information (the client).
* **Sexting**: The transmission of sexually explicit messages or images, usually via smart phones or tablet computers, between consenting individuals.
* **Unmoderated**: Blogs and other social media outlets that are not monitored for inappropriate content, or fact checked for accuracy.
* **Utilitarianism**: The ethical theory that holds that the ethically correct action to take in a situation is the one that maximizes the total happiness or benefits that accrues to society.