CSCI-495 Senior Seminar
Fall 2007

10:00 – 10:50 MWF
316 Thompson Hall

Instructor : Dr. M.A. Francel
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Office Hours:

11:00 – 12:00 and 2:00-3:30 MWF, 1:00-2:00 TR or
by appointment; or by phone

Feel free to call me at home for help with your work any day of the week, including weekends, between 8am and 11pm.

Texts:

Computer Ethics by Deborah G. Johnson
Technical Communication by William Pfeiffer

References:

(for ethics)

Ethics & Technology
Herman T. Tavani
John Wiley and Sons
ISBN 0-471-24966-1

(for written communication)

The Mayfield Handbook of Technical Scientific Writing
Perelman, Paradis, and Barrett
Mayfield Publishing
ISBN 1-55934-647-7

Course Description:

Required of all computer science majors. Open only to seniors. Important topics in computer science will be studied in area ranging from theoretical computer science to social, professional and ethical issues. Students will be required to make oral and written presentations.

Lecture : 3 credit hours

Course Objectives:

- Review and bring together the knowledge areas of computer science studied throughout the curriculum, adding one or more new areas.
- Practice methods of individual investigation and communication.
- Make students awareness of the ethical, professional and social issues related to computer technology.

Course Outcomes:

By the end of the term students should:

- be prepared to take the ETS major field exam;
- have performed one or more searches of the computer science literature and written several different types of papers;
- have given several short oral presentations and one longer presentation that used Microsoft Power Point;
- be able to discuss ethical, professional and social issues related to computer technology.

Class Attendance and Discussion:

Class Attendance is expected. Further, it is expected that everyone will take an active role in class. This means answering questions as well as taking part in class activities.

Students who sleep in class will be treated as absent from class.

Homework:

Students will be given a variety of homework assignments. Some are a preparation for the ETS exam; others are related to ethics & technology or communication. Each will be graded. Grades will not be curved.

The homework will be assigned, collected, and graded on the date announced when the assignment is made. It is an important part of the course. You are expected to devote appropriate time outside of class to the completion of this work. Do not get any outside help on any graded work except from me.

Homework will not be accepted late for any reason. If you are unable to come to class on the day a homework assignment is due, it is up to you to see that the homework is passed in before class begins.

Quizzes:

Unannounced quizzes will be given throughout the term when appropriate.

Assessment:

40% ethics related hw and presentations
- 18% hw, class discussion, short presentations
- 22% ethics presentation with PowerPoint

36% review for ETS
- 12% quizzes, short hw assignments
- 12% review sheets
- 12% ETS exam (NOV 15 at 2 pm)

24% communication
- 6% short assignments
- 9% data analysis
- 9% literature review

Course Grading Scale:

A	100-89%
B	89-80%
C	79-70%
D	69-55%
F	below 55%

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Study Units and Related Reading
Fall 2007

ETHICS

All reading refers to the text:
***Computer Ethics,* by Deborah G. Johnson**

Unit 1: Why Computer Ethics?
Reading: Chapters 1

A case is made for the importance of computer ethics and why computer and information technology raises ethical questions when other technologies do not.

Unit 2: Philosophical Ethics
Reading: Chapter 2

The aim of this unit is to show that ethics is not just a subjective and relativistic enterprise. Rather ethics and ethical analysis involves giving reasons and making arguments for one's claims and subjecting those reasons and arguments to critical evaluation. Traditional theories will be reviewed.

Unit 3: Professional Ethics
Reading: Chapters 3

This unit looks at what it means to become a member of a profession – both the moral rights and the responsibilities are looked at Responsibility to employer, client, the public and co-professionals and how they can come into conflict are all examined. Software engineering licensing and professional codes of ethics are also looked at.

Unit 4: Ethics and the Internet
Reading: Chapters 4

The properties that make the Internet morally significant and distinct are identified, as is the significant of its global scope, anonymity and reproducibility. Hacking and hackers are also examined as is controlling socially undesirable behavior.

Unit 5: Privacy
Reading: Chapter 5

This unit asks how computer and information technology has changed the collection and distribution of personal information. An argument is given that supports personal privacy not just as an individual good but also as a social good. The importance of privacy for democracy is stressed. A variety of possible approaches to improving the protection of personal privacy are identified.

Unit 6: Property Rights
Reading: Chapters 6

The laws related to property rights are examined. A description of the problem of ownership is stated. Copyright, trade secrecy and patent law and the inadequacies each has for protecting computer software is talked about. The philosophical basis for property rights is also looked at. Copying proprietary software is discussed from the point of view of what makes it wrong.

Unit 7: Accountability
Reading: Chapter 7

A number of scenarios are posed that cover a wide range of accountability issues. Using these as a starting point responsibility, accountability, liability, and blame are discussed.

Unit 8: Social Issues
Reading: Chapter 8

A general discussion of technology and social change is given. Questions such as, Is computer information technology causing a social revolution? Is it changing things or reinforcing the status quo? Is technology good or bad? Is the gap between the have and have not widening? What about the gender gap? are examined. A discussion of the value of freedom of expression and jurisdiction, systems of trust and insularity are also discussed.

ORAL & WRITTEN COMMUNICATION

Unit 1: Presentations Using PowerPoint

- Text
- Formatting
  - bullets, size, color
- Tables
- Ending

Unit 2: Writing a Letter
- Cover letter,
- Resumes,
- Reference letter

Unit 3: Analytical Summary of a Paper
- Identifying and describing the motivation and specific goal of the work
- Identifying and describing the intellectual contribution of the work
- Identifying and describing the critical points or results that are presented

Unit 4: Reviewing the Literature
- What is the issue of the review
- Finding the source documents
- Citations and bibliographic entries
- Describing the work
- Evaluation

Unit 5: Presenting Experimental Data
- Stating the problem
- Describing the experiment
- Stating the results
- Conclusions

ETS REVIEW

Review Topics:
- Algorithms -
  - Complexity
  - Standard algorithms
- Data Structures
- Databases
- Software Engineering
  - Process activities
  - Human-computer interaction
- Computer Org and Arch
  - Logic
  - Operating systems
  - Networking
- Programming Fundamentals
  - Basis constructs and data structures
  - Problem-solving
  - Recursion
  - OO programming

Inheritance, polymorphism, information hiding

New Topics: (as time permits)

Algorithms, Theory and Computational Mathematics
- Fundamental algorithmic strategies
  - Greedy, divide and conquer, backtracking
- Automata and language theory
  - Models of computation
  - Formal languages
- Discrete structures
  - Logic
- Graph theory and counting