

CSCI 494

Social and Ethical Issues in Computing (Capstone)

Spring 2017 Tu 8:30–10:25 am SCI 131

<http://cs.wheaton.edu/~tvandruncs494>

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Office: SCI 163 Office hours: MTuWF 3:30–4:30pm;
Th 9:30–10:30am and 1:00–3:00pm.

Contents

CATALOG DESCRIPTION. Study of the ways in which the computer and communications revolution is changing society. Develop an awareness of and sensitivity to the ethical issues that arise in computer science and related professions. Prerequisite: Senior standing in the major.

TEXTBOOK. CSCI 494 course packet available at the bookstore.

OBJECTIVES. The purpose of this course is to provide the setting and opportunity to observe the connections between computer science and other disciplines, reflect on how technology and computer science affect culture, and engage in ethical questions that arise in the computer science community.

In terms of the computer science Program Objectives (PO), this course enables students to attain

- An ability to to participate and grow in professional practices. (PO H)
- A recognition of the implications and impact of computing theory and practice on church and society. (PO I)
- An appreciation of the craft and aesthetics of computer science. (PO J)
- An ability to articulate the intersections of computer science with faith and other disciplines. (PO K)

In terms of the Capstone Experience Learning Outcomes (CELO), this course will ensure students are able to

- Integrate the discipline of computer science with their Christ at the Core learning. (CELO 1)
- Articulate how their understanding of vocation (God’s general calling on all Christians, their calling as students, and their distinctive vocational callings) has developed while at Wheaton College. (CELO 2)
- Discuss how studying the Christian liberal arts themselves and computer science in that context has shaped their growth in knowledge, wisdom, and Christian character. (CELO 3)

OUTLINE. This course is in a transitional state. This semester I am teaching it for (almost) the first time, and it is evolving to comply with the capstone requirements for the new CATC curriculum. I’m basically making this course “readings on things that I find interesting and have shaped my thoughts about computer science.” I have leaned towards texts that are “classics”, that is, chapters and articles that have had some influence, in part from having been around for a while.

The readings I’ve picked fall into the following topic/headings. (For the sake of transparency, I should confess that I gathered readings first and then observed how they clumped into topics rather than the other way around.)

Computer science and personality. There is a stereotype of a people who are attracted to computer science. Is it valid? How has it affected computer science itself? Has this kept people who don't seem to fit out of the field?

Computer science education. Computer science academia has been criticized for failing the students who do not fit the mold. How should computer science be taught? Should it be tailored to a small number who take to it naturally or made accessible to a wider audience? Should it be taught as math, as a science, as engineering, or as art?

Women and computer science. Women have been drastically underrepresented in computer science. Why is that, and how can this be fixed?

Programming and power. Programming ability gives one power. How does this affect the human psyche?

The ethics of hacker culture. The computer science community—and “hacker” culture in particular—has its own set of values and standards, seen, for example, in the Free Software movement. To what extent is this ethic compatible with biblical thinking?

The production of software. Even though we pursue computer science as a scientific field, producing software is its primary activity. How does one's philosophical starting point shape this practice? Specifically, do biblical commitments make a difference?

Design. Design is a definitively human activity. How does human nature affect how design is done? How should love for one's neighbor affect how design is done?

Skepticism of technology. New technologies are often welcomed with enthusiasm for their potential to improve our lives, but there are also those voices that ask what we're losing. Are their objections valid? Do they warrant rejecting certain technologies, or can these liabilities be mitigated?

Defining the field of computer science. Computer science is a young field, and not everyone agrees on what it is. What are the defining characteristics? What could, or should, the field be?

Computer science and faith. It is not obvious how being a Christian affects how one practices computer science, nor how computer science informs our faith. What are the explicit (or subtle) intersections—if any?

Computer science connections. Computer science interacts with many other fields. What are the common threads—especially with math, music, and art?

For a schedule, see the course website.

Course procedures

HOW WE DO THIS COURSE. This course is completely unlike any other I teach. We just read and talk, and eventually bring our thoughts together into a paper. Each week there will be a bunch of readings. You'll send me a summary to prove that you read them and to give me a feel for what the class is thinking. In class we'll just discuss. During the course of the semester you'll write a few essays and one big paper.

Leading class discussion is not what I usually do, so bear with me. And let's have fun with this. I think you'll find the readings interesting and engaging, even if you don't agree with their view.

READINGS. The core of this course's experience is in interacting with the readings. Accordingly, it is imperative that you are faithful at doing the assigned readings. The number of pages will vary a little, so look ahead on the schedule and get an early start when you see a big one coming. Don't save it all for the night before—read throughout the week so that you can have some time to digest the ideas before class.

Send me a summary (one good thing and one bad thing about each reading) no later than 8:00 pm the night before class. In addition to proving that you read it, this will help me know ahead of time what students are thinking and so help me focus our discussion the next day.

ESSAYS. You are required to turn in five page-and-a-half-or-so essays throughout the semester. I'm not giving specific due dates for these, but you should spread them out, both for your sake and for mine (so I'm not inundated with essays the last week of the semester). In each essay you will give your response to ideas that have come up in the readings and in class discussion. The intent is that these essays will be your "final word" on some thread of discussion from class. I will post a few essay prompts after each class, but you won't be limited to those.

Please turn these in as hard copies (either bring them to class or place them in my box.)

In future semesters, in one of those five essays each student must articulate his or her understanding of vocation, following-up on an essay assignment from the First Year Seminar on C.S. Lewis's "Learning in Wartime." This essay will be used to assess CELO 2. In another of the five essays, each student must reflect on his or her personal growth while at Wheaton. That essay will be used to assess CELO 3.

TERM PAPER. You will write one big term paper (8–12 pages) on a topic of your choice drawn from the topics discussed in class (or that would fit in this class). In future semesters, students will demonstrate their understanding of the integration of Christian liberal arts learning with the technical understanding of the discipline of computer science in this term paper, and it will be used to assess CELO 1.

There are three models you could follow for this term paper:

Topical paper. Pick a topic and a question within that topic—especially a social or ethical question—and do some research. Find articles and other resources on the topic, synthesize what you've read, draw a conclusion, and defend that conclusion from the evidence. This model is particularly good for topics not covered in the readings (and there are many).

Book report. Pick a book, read it carefully, and interact with the details of the author's argument. We'll be reading excerpts from many books. If one particularly strikes your interest, then go read the rest of the book. Of course, you'd have to read ahead to know if you're interested in a reading we'll do later in the semester.

Close reading. Pick an article or paper (could be one we read for class, but not necessarily—I'll provide a list of unassigned but interesting papers) and dissect it exhaustively. The hard work of this is getting the sources the author cites and judging whether the author has used them fairly. My paper "A Christian Analysis of Gabriel's 'Mob Software'" is an example of this model. I use the pattern of *context* (what did the author's sources actually say?), *content* (what did the author say?), and *critique* (was the author right?).

Your work on the paper will be structured into a proposal, an outline, a draft, and a final version. See the course website for due dates of these checkpoints.

FINAL EXAM. There will be a final exam consisting of essay questions held during this class's exam block.

GRADING. Your grade in this class will be based on

<i>instrument</i>	<i>weight</i>
Essays	25
Term paper	50
Final exam	25

Additionally you will be penalized for missing a reading response and rewarded for outstanding contribution to class discussion.

Policies etc

ACADEMIC INTEGRITY. All your assignments are to be original work. Any occurrence of plagiarism will be handled according to the college's policy.

ATTENDANCE. Students are expected to attend all class periods. It is courtesy to inform the instructor when a class must be missed.

EXAMINATIONS. Students are expected to take all tests, quizzes, and exams as scheduled. In the case where a test must be missed because of legitimate travel or other activities, a student should notify the instructor no later than one week ahead of time and request an alternate time to take the test. In the case of illness or other emergency preventing a student from taking a test as scheduled, the student should notify the instructor as soon as possible, and the instructor will make a reasonable accommodation for the student. The instructor is under no obligation to give any credit to students for tests to which they fail to show up without prior arrangement or notification in non-emergency situations. The final exam is Tuesday, May 2, 8:00 AM. I do not allow students to take finals early (which is also the college's policy), so make appropriate travel arrangements.

SPECIAL NEEDS. *Institutional statement:* Wheaton College is committed to providing reasonable accommodations for students with disabilities. Any student with a documented disability needing academic adjustments is requested to contact the Academic and Disability Services Office as early in the semester as possible. Please call 630.752.5941 or send an e-mail to jennifer.nicodem@wheaton.edu for further information.

My own statement: Whenever possible, classroom activities and testing procedures will be adjusted to respond to requests for accommodation by students with disabilities who have documented their situation with the registrar and who have arranged to have the documentation forwarded to the course instructor. Computer Science students who need special adjustments made to computer hardware or software in order to facilitate their participation must also document their needs with the registrar in advance before any accommodation will be attempted.

GENDER-INCLUSIVE LANGUAGE. The college requires the following statement to be included on all syllabi: *For academic discourse, spoken and written, the faculty expects students to use gender inclusive language for human beings.*

OFFICE HOURS. I try to keep a balance: Stop by anytime, but prefer my scheduled office hours. Any time my door is closed, it means I'm doing something uninteruptible, such as making an important phone call. Do not bother knocking; instead, come back in a few minutes or send me an email.

DRESS AND DEPARTMENT. Please dress in a way that shows you take class seriously—more like a job than a slumber party. I feel this is especially important to mention since this is a morning class. Moreover, since this is a discussion class, you should note that how you present yourself communicates to your classmates how seriously you take the class, and how seriously you take them. (If you need to wear athletic clothes because of activities before or after class, that's ok, but try to make yourself as professional-looking as possible.) If you must eat during class (for schedule or health reasons), please let the instructor know ahead of time; we will talk about how to minimize the distraction.

ELECTRONIC DEVICES. Please keep laptops and all electronic devices put away and silenced during class. (That's right, this is a computer science course, but you're not allowed to use a computer during class. Trying out programming concepts on your own during class time (for example) is not productive because it takes you away from class discussion. You cannot multi-task as well as you think you can.) ***Text in class and DIE.*** I take this very seriously.