CS384: Perspectives on Computing
Calvin University
Spring 2022

Instructor: Prof. Derek Schuurman


Schedule: Tuesday and Thursdays 10:30-11:45am (section A), 12:00-1:15pm (section B) in HH-334

Course Description: This course addresses social, ethical, legal, and professional issues that arise in computer science from a Reformed Christian perspective. Social issues concerning the computerization of society include privacy, security, the digital divide, and changes in the way people receive information and relate with others. Ethical discussions include a survey of ethical theories and covers professional, ethical and legal issues in areas including intellectual property, privacy, liability, and professional codes of conduct. In addition, some foundational issues are covered, including norms for design and what it means to be a person.

Prerequisite: Last year of a computing-related program.

Motivating Question:
“Does the ancient Christian faith still have anything to say to a fast-paced modern world shaped by such technology? Tertullian, a father of early Christian literature, once posed the question, "What does Athens have to do with Jerusalem?" When it comes to computer technology, we might well ask, ‘What does Silicon Valley have to do with Jerusalem?’ In a nutshell: what do bytes have to do with Christian beliefs?” (*Shaping a Digital World*, p. 11)

Learning Outcomes:
Upon successful completion of this course, a student will be able to:
- articulate how a reformed Christian perspective informs the use, design, and norms for computer technology
- critically engage different perspectives on technology including instrumentalism, technological determinism, and technicism and explain why technology is not neutral
- discuss a variety of social, ethical, legal, theological, and philosophical issues related to computer technology
- demonstrate familiarity with professional codes of ethics
- express themselves clearly orally and succinctly in writing

Attendance/participation: Since this is a seminar-style course, you must be present to participate! Attendance in class is required and students are expected to be prepared and actively involved in discussions. Arrival to class more than 5 minutes late will be considered an absence. Students are required to follow regular weekly readings in preparation for participating in class discussions.

5-minutes with the Professor: At some point in the first month of classes, please make arrangements to meet with the professor for a short chat in which you introduce yourself and share (1) your hopes (or fears) for this course and (2) your thoughts about your future vocation after university. You will be responsible for arranging a time and setting up a calendar invite in Outlook. Ideally this will be done in person, but it may also happen over teams.

Quizzes: There will be regular, low-stakes quizzes on the weekly readings and recent course content. The purpose of these quizzes is strictly to check that you are completing the readings and following along in class. These will be given at the beginning of class and scattered throughout the semester. The lowest quiz score will be dropped. Refer to Moodle for quiz dates.

Leading a Class Discussion: Pairs of students will be required to lead one class discussion based on one of the weekly readings. This will be done in pairs at the start of a class on a date students must sign up
for. Each pair of students will give a 1-minute summary of one weekly reading (each group must pick a unique reading), pose an interesting question which arises from the reading, and lead the class in a discussion lasting no more than 10 minutes, and close with a brief summary of how this topic shows how technology is not neutral, how faith informs this topic, and a personal response. Presentations should be verbal without using slides. Grades will be out of a total of 5 points as follows: quality of the reading summary (1 point), quality and relevance of the question (1 point), engaging and leading the discussion (1 point), knowledge of subject matter (1 point), bringing faith to bear on the issue and illustrating how technology is value-laden (1 point). Students will be responsible for ensuring they sign up for a class discussion slot within the first two weeks of the course.

**Reading Responses:** Students will be required to submit reading responses to each of the weekly readings on Moodle, normally due by Tuesday morning. The reading responses will be at least 200 words in length but must not exceed 500 words. Unless otherwise specified, the responses must include the following elements under clearly labeled headings for each:

1. **Question:** What question is uppermost in your mind arising from the readings?
2. **Summary:** a brief summary of main points for all of the week’s readings. The title of each reading should be clearly indicated in bold next to each summary
3. **Reflection:** reflect briefly on something from the reading(s) that connects with a personal experience or issue that resonated with you or with a current event in the news.

Reading responses will be marked out of three: one mark for each of the above elements. A full mark will be awarded for a satisfactory element, a half mark will be awarded for a less-than-satisfactory element, and a zero will be awarded for a missing or very poor element. A late reading response will receive a mark of zero. No late submissions will be accepted.

For the first week only, students will be required to post an introduction to themselves and reflect on whether they feel technology is neutral. For the final submission, students will be asked to reflect on the course and complete a senior survey.

**Presentation:** In addition to the weekly required readings, each student must read one book chosen from a list of approved books (other books on technology issues may be considered with approval from the instructor). Students must each choose a distinct book for their class section. Each student will be responsible for a presentation on the book they have selected sometime during the last weeks of classes. This will involve preparing a one-page summary for the class which must include the following under appropriate headings: author background, abstract of the book, summary of the related design norms, and a personal response. This summary should be uploaded to files under Teams before your presentation with a filename in the form: student_name-book_title.pdf. Students will be evaluated by the professor and answer questions raised by peers. Presentations should include appropriate visual aids. The date for each student’s presentation will be posted on Moodle. Grading will be based on both content and delivery of the presentation.

**Final Paper:** Each student must also write a paper in conversation with their chosen book dealing with a contemporary technology issue. The paper should provide a thoughtful perspective on the book and the issue by identify its main ideas and presuppositions. The report should articulate a reformed Christian perspective on the topic (drawing on themes presented in your textbook) and referring to the norms as discussed in our text as well as in class. Each report should be written concisely with a suggested word count of at least 1100 words and not more than 1400. The report should include each of the following sections headings:

- **Title page:** include book title, name, and your final word count
- **Introduction:** introduce the author and subject matter
- **Summary:** overview of the book, including its main points, themes, and presuppositions on a particular technological issue. What enduring question(s) does it reflect?
• **Perspective:** a thoughtful perspective on the book that describes the worldview(s) evident in the book as well as a Reformed Christian perspective on the topic, identifying related design norms
• **Conclusion:** a concluding summary, including your own thoughts and opinions on the topic and concluding insights gleaned from the weekly reflections over the semester.

*Each of these sections should be clearly labeled in **bold** with left-justified headings.* Note that submitted material should be word-processed, single-sided printed pages using 12pt font, double-spaced, left-justified, and with 1-inch margins and submitted in Moodle a PDF file. Any footnotes which are included should be cited using Chicago style. Students are encouraged to make use of Calvin’s Rhetoric Center as they craft their final report. Reports will be due on the same day as your presentation.

**Laptop policy:** One of the concepts taught at the beginning of this course is that technology is not neutral – it embeds a bias and is value-laden. Consequently, technology in the classroom changes things. In order to minimize distractions, the use of laptops and mobile devices will not be permitted during class presentations and discussions (exceptions will be made for students who require them strictly for notetaking in class).

**Grading:** Grading queries need to be raised within one week of the grades being posted. No grading queries will be entertained and no further work accepted after the last day of classes.

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<thead>
<tr>
<th>Attendance and participation</th>
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<td>5-minutes with the professor</td>
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<td>Quizzes</td>
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<td>Weekly reading responses (on Moodle)</td>
<td>40%</td>
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<td>Leading a class discussion</td>
<td>5%</td>
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<td>Presentation</td>
<td>10%</td>
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<td>Final report</td>
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**Course Outline:** A tentative schedule for the course is shown below. Tentative readings for each week are shown, but *the final list of readings will be posted weekly on Moodle.* It is the responsibility of each student to do the weekly readings *before* the first class of the week to enable meaningful discussions.

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<tr>
<th>Week</th>
<th>Topics</th>
<th>Readings</th>
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| Week 1  | Introduction to a philosophy of technology                             | • Psalm 8
<pre><code>      | • technological instrumentalism and determinism                         | • *Shaping a Digital World*, preface and chapter 1                        |
</code></pre>
<p>| Jan.    | • technology <em>bias</em> and <em>value-ladenness</em>                             | • James Huggins, “The Assumptions of Computing”                           |
|         | • 4 laws of media (Marshall McLuhan)                                 | • Neil Postman, “Five Things We Need to Know About Technological Change” |
| Week 2  | Computer technology and the Biblical story                              | • Genesis 1:28; Psalm 19                                                  |
| Jan.    | Technology and the unfolding of creation                               | • <em>Shaping a Digital World</em>, chapter 2                                   |
|         | Dooyeweerd’s modal aspects: an anti-reductionist view of reality       | • James Smith, “In the Beginning... was Technology”, <em>The Banner</em>, March 2016. |
| Week 3  | Computer technology and the fall                                       | • Romans 8:22-30                                                         |
| Jan.    | • Is technology a result of the fall?                                 | • <em>Shaping a Digital World</em>, chapter 3                                   |
| 25,27   | • Are s/w bugs a result of the fall?                                   | • Goudzwaard, <em>Idols of our Time</em>, pp 20-23.                              |
|         | Discerning <em>structure</em> and <em>direction</em>                                | • Noah Kulwin, “The Internet Apologizes”, <em>Intelligencer</em>, April 2018.    |
|         | • how digital tech (mis)shapes us                                     | • Dickerson, “Wendell Berry, C.S. Lewis, J.R.R. Tolkien and the Dangers of a Technological Mindset” |</p>
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<th>Week 4</th>
<th>Feb. 1, 3</th>
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| Redemption and Responsible Technology | • anti-normative technology  
   The “technological mindset” | • L.M. Sacasas, “The Materiality of Digital Culture” |
|  |  | • Col. 1:15-20; 2 Cor. 5:18-21  
   • *Shaping a Digital World*, chapter 4  
   • Al Wolters, “Structure and Direction”, from *Creation Regained*, pp. 87-95.  
   • Jacques Ellul's “76 Reasonable Questions to Ask About Any Technology”  
   • “The Questions Concerning Technology” by L. M. Sacasas |
| • Structure and direction  
• Reformation vs. revolution  
Normative design principles: cultural appropriateness, transparency, social norms, stewardship, aesthetics, justice, ethics, and trust |
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<th>Week 5</th>
<th>Feb. 8, 10</th>
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| Technology and the Future: | • 2 Peter 3:10; Rev. 21:22-27; Isaiah 60  
   • *Shaping a Digital World*, chapter 5  
   • Richard Mouw, *When the Kings Come Marching In*, chapter 5  
   • Nick Bostrom, “Transhumanist Values”  
   • Andy Crouch, “The Bionic Man and the Body of Christ”, *Christianity Today*  
   • Ray Kurzweil, *The Singularity is Near*, pp. 7-9. |
|  |  |
| • optimism and pessimism  
• science fiction and popular culture Progress: Epicurean, enlightenment, and modern views  
Transhumanism, posthumanism, and the singularity  
Christian eschatology and the new heavens and earth |
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<th>Week 6</th>
<th>Feb. 15, 17</th>
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| Professional Ethics and Responsibilities | • Matthew 22:36-40; Deuteronomy 22:8  
   • “A First Look at Ethics”, from Integrated Ethics Labs  
   • N.T. Wright, “Paul and Christian Character” (video)  
   • ACM Code of Ethics  
   • “Engineers, Ethics, and the VW Scandal”, *IEEE Spectrum*.  
   • “How the Boeing 737 Max Disaster Looks to a Software Developer”, *IEEE Spectrum*. |
| Approaches to Ethics: |  |
| • virtue ethics, deontology, consequentialism  
• virtue and Christian character  
The ACM Code of Ethics  
Reliability and Safety issues; Case studies:  
the Therac-25 incident  
VW emissions scandal  
Boeing 737 Max 8 |
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<th>Week 7</th>
<th>Feb. 22, 24</th>
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| Technology habits and rituals  
Social networking issues and the metaverse | • Psalm 121  
• Cathy O’Neil, “The era of blind faith in big data must end”, TED talk  
“*My Dream, My Taste*” (video clip) |
|  |  |
| • Surveillance capitalism, Digital authoritarianism, free speech  
• Truth, misinformation, fake news, and negative epistemology  
• Behavior modification  
Virtual reality  
Technology and bias  
Big Data and the societal impact of algorithms  
• impacts on justice and democracy  
Privacy and personal information |
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| Spring Break – March 1, 3 |
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<tr>
<th>Week 8</th>
<th>Mar. 8, 10</th>
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| Artificial Intelligence (AI) and machine learning  
AI Ethics  
Responsible automation | • Psalm 139:13-18  
• Schuurman, “Artificial Intelligence: Discerning a Christian Response”  
• *AI: An Evangelical Statement of Principles*  
• Mark Harris, “Inside the First Church of Artificial Intelligence”, *Wired*, Nov. 2017. |
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Week 9
Mar. 15, 17
Intellectual Property Issues
• copyrights, patents, trademarks
• software copyright, software patents and software API’s
• Open Source and free-software philosophy and licenses

Week 10
Mar. 24
The Christian concept of Vocation
“You Are What You Love”
• Augustine, secular liturgies, and the heart
• Technology and the heart Technology, worship, and the church, Christian liturgy as resource for cultural innovation
VR church

Concluding thoughts

Weeks 11-14
Student Presentations

May 6
Final day of class – summary and reflections, senior survey

Academic Honesty
Students are expected to display honesty and responsibility in completing assignments. Students are responsible for understanding the information on plagiarism contained in the Student Conduct Code (Article IV. B). For more information, refer to the Calvin plagiarism policy.

Communication outside of Class Times:
Important announcements will be sent via Calvin email, so students should check their Calvin email on a regular basis. Generally, the instructor will be happy to help you and welcomes you to contact me using Teams, which is my preferred way of communication outside the classroom.

Accommodations:
Calvin University will make reasonable accommodations for persons with documented disabilities. Students should notify a disability coordinator in the Center for Student Success in order to arrange accommodations. Then, come and talk to me within the first two weeks of class so we can put your accommodations in place.

Commitment to Hospitality:
It is our intent that students from all backgrounds and perspectives are well served in this course. Join me in creating a class that creates a space where we can ask honest questions and explore important ideas related to various technology issues. If you or someone else is hurt by anything said or done in class, let me know so we can work toward a remedy.
List of Approved Books for Final Paper

Dyer, John, *From the Garden to the City: the redeeming and corrupting power of technology*, Kregel Publications, 2011.


Perlroth, Nicole, This Is How They Tell Me the World Ends: The Cyberweapons Arms Race, Bloomsbury Publishing, 2021.


Turkle, Sherry, Alone Together: Why We Expect More from Technology and Less from Each Other, Basic Books, 2011.


