History 279C
The Cultural History of Computing

This is a sample syllabus. Changes are possible.

This course will teach students about the History of Computing and Computers from the development of number systems and arithmetic, through calculating and computing machines, to advanced communication technology via the Internet, toward quantum computing, AI, and "the singularity."

By taking a cultural historical approach, this History of Computing will also explore relationships between intellectual climate and technological innovation--positing that computing and the technologies of information are intricately connected with the cultural history of humanity. In essence, it will be a blend of Western Civ and Computing History that should really help us place *ourselves* into the context of the ongoing Information Revolution that is human history.

Taking advantage of many of the new technologies available to educators today, this course will involve independent study of online lectures and course materials (allowing you to go through them on your own time, at your own pace), combined within class discussion of these materials with the professor(s). As a result this course will constitute a synthesis of learning methods: full video lectures and discussion sections for further explanation and answering questions directly. We believe that this is an exciting and effective model for integrating online and in-class teaching.

As a 200-level course, the writing component of this class will consist of forum summaries of video lectures rather than research papers and exams.

Course Units
(Tentative Sequence)

Each Unit will involve watching Video Lectures that cover the following factors for each era:

General History: Political, Social, Economic, Military
Cultural Historical Highlights: Ideas, Ideologies, Visual Arts, Literature, Music
Science and Technology: Major Advancements in Math, Physics, and Applied Technologies
Computation and Computing: The Evolution of Calculation by Humans, Information Media, and The Machines We Call Computers
Outcomes and Impact of Each Stage in the Information and Computing Revolution

Main Eras and Some Computing Highlights

- **01 Introduction: Cultural History and the History of Computing—A Dialogue**
- **02 What is an Electronic Computer?**
- **03 What is the Internet?**
- **04 Prehistory to 1789: Ancient Societies to The Age of Reason** (Number Systems to Newton)
- **05 1789-1914: The Long Nineteenth Century** (Mathematical Tables, Babbage, Lovelace, Hollerith)
- **06 1914-1945: The Thirty Years War** (Turing, von Neumann, Colossus, ENIAC)
- **07 1945-1960: Mainframing** (EDVAC, UNIVAC, IBM)
- **08 1960-1975: Space Racing to the Internet** (IBM, NASA, ARPANET)
- **09 1975-1984: Miniaturizing toward the Personal Computer (**Altair, Microsoft, Apple, Video Games, The Internet)
- **10 1984-1990: Linking Up the World Wide Web** (Macs, PCs, The Web)
- **11 1990-2000: Browsing toward the Dot.com Crash** (Open Source, Browser Wars, Mobile Technology)
- **12 2000-2010: Searching For (and Finding) H.G. Wells' "World Encyclopedia"** (Web 2.0, Search Engines, The Google, The iPhone)
- **13 2010-2018: Quantum Computing toward The Singularity (**Social Networking, Quantum Computing, The Singularity)
- **14 2018 and Beyond: "The Intergalactic Computer Network" Expands**
- **15 Conclusions**

Course Instructions

- **Calendar**:
    - Each UNIT (more below) consists of one or two lecture videos that you will watch when and where you wish, and summarize in Forum entries in time for one in-class discussion of the material.
    - Remember! ALL of this material is available online. You can do each unit any time you wish *until the assigned deadline*. That is completely up to you. Just don't fall behind.
    - You just need to keep up and complete the Forum entries by the weekly deadlines.
    - **After the first week, when we will meet on Tuesday to start things, we *will not meet on Tuesdays in the classroom*,** in order to give you time to complete the Units and Forum entries.

• Then, *we will meet on Thursdays* **for a discussion of the materials.** We will answer some of the questions posted in the Forums, cover other examples, and discuss other matters with you in person.

• **COURSE UNITS**: This is the core of the course.
  • You will see each Unit that you are responsible for, according to the above schedule.
    • Near the top, you will see *LEC 01: Introduction to Course*.
    • This is the first Lecture Video for the course. We will start the first day by watching it in class. For now, if you click on it, it will open the video and you can watch it there (on any device you prefer). Every course UNIT will start with a lecture in this format.
    • Then, in this case, click on *Forum 00, at the very top*. After you watch the video, you will click on the Forum and add a comment or question by the deadline. This is how you will engage with us about the material. We *will respond to the forums in the classroom meetings.*
    • For the first few, UNITS 0-1-2, the subject matters are VERY broad discussions of the course goals, and then what computers and the internet are. All of this is "warm up," as we explain in the lectures. So, these first three won't count toward your course grade--but will be a preparation for the rest of the course.

• **Forum Entries**:
  • **For this 200-level, blended course format, these entries will constitute the main portion of your course grade**. *So you need to take them seriously.*
  You must complete your Forum entries by noon on the days indicated on the Calendar, usually *Wednesdays* (so we can look at them in preparation for Thursday discussions).
  • You can earn 0-4 points (usual grade scale) for each forum entry.
  • All this will be averaged in the Gradebook
  • For most Units we have added listings of books, articles, and documentaries to consider as you go through the Lectures. These may help you to develop more substantial responses. Moreover, Extra Credit writing opportunities to review these materials will be offered. But, your main responsibilities for the course will be to watch the Video Lectures and contribute to the Forums. If you do a serious job of this, your grade will be determined mainly by these elements.

• **All this said:**
  • Keep in mind that the goal and pleasure of this course is to share with you the most profound stories in World History.
  • Don't let the mechanics get in the way of that--even though it is "school," on and off line.
  • We think you will derive some real knowledge and hopefully some intellectual satisfaction by following this story.