A Brief History of Data, Information and Knowledge
“From the Abacus to the Computational Science”
HON 329 02  Fall Semester 2012
Course Syllabus
Version 1.3  August 24, 2012

Instructor  Dr. Kenneth E. Murphy (Ken)
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Required Texts


(Others may be added)

Course Prerequisites
Acceptance to the University Honors Program or consent of instructor

Course Rationale
A student taking this course will develop a strong historical context for the evolution of information technology from ancient to present times. In particular the course focuses on the development of business and consumer computing technologies and their future trajectories. Within this area, the principal focus is on computing and algorithms that are ubiquitous today.

As a component of the historical perspective, the course investigates the mathematical and technological foundations of computing and the development of computing hardware. Heavy emphasis is placed on software and in particular algorithms that are fundamental in modern computing. In addition, the social and ethical issues brought about by the presence of modern information technology will also be considered.

Course Description
This course traces the history of computers and computation from early calculation tools to modern computing including analytics, business applications, the Internet and social media. Students will be exposed to and practice relevant mathematical theories and technologies for managing data, information and knowledge.
Learning Outcomes

A student completing this course will be able to:

- Summarize the early history of mathematical and technological innovation and its effect on computing
- List and classify in terms of importance the development the technological antecedents and early computers
- Describe the early evolution of software and software development
- Elaborate on the purpose and theoretical underpinnings of databases and the evolution of database technologies including the role of structured query language
- Classify in terms of technological sophistication and historical contexts specific applications of hardware, software and networking technology in modern organizations
- Draw clear distinction between data, information and knowledge and in particular, describe specific applications of knowledge management
- Deconstruct the Internet into its technological components, and analyze it as a database and describe the role of key applications, e.g., search engines and social media
- Describe the purpose of data mining, pattern matching and predictive analytics
- Integrate historical context of current hardware and software development to predict future trends and challenges
- Critique the development of computing technology from ethical perspectives, e.g., on issues of privacy, freedom of speech or with respect to the digital divide

Course Format and Evaluation

A detailed class schedule is shown below for all class periods. The classroom periods will generally be composed of “reading and conference” discussions between students and instructor on the assigned reading as well as some formal and informal presentations. There may also be outside speakers.

Students are expected to prepare for class and keep up with the assigned reading and classroom assignments. In this course there is no attendance policy, but students absent from a class will not be given any special dispensation.

The course will be evaluated in four major areas: participation, homework assignments, a midterm paper and a final report.

Participation

Active student participation during class sessions, and tentatively, at other times, is required in this course. Participation will be assessed on a daily basis and students will be provided with immediate feedback.

Participation in each class will be scored as follows:
0 – No participation or student did not attend class
1 – Some contribution to class
2 – Competent, prepared and thoughtful contribution to the class

Students are expected to obtain a total of 50 participation points over the course of the semester. There may be additional opportunities to obtain participation points outside of normal class times. Students may also be alert to class sessions where participation will not be evaluated.

Participation will count for twenty percent (20%) of the overall course evaluation.

Homework

Students will be assigned approximately biweekly homework to provide insight and practice developments in mathematical, algorithmic, data management and analytical techniques.

Homework assignments may be completed by working together in groups, however the final answers submitted should be your own work. Thirty percent (30%) of the course evaluation will be based on homework assignments.

Midterm Paper

A short (10 or less) page paper will be required in the middle of the term. This research paper will be historical in nature describing in detail the relevance and impact of the development of mathematical theory, technology, data management systems or the associated analytics.

The specific requirements of this project will be provide at a later time.

Fifteen percent (15%) of the course evaluation is based on this work.

Final Report

The final course report is a research paper of significance that is forward looking with respect to developments in mathematical theories or tools, computing technologies, data management or analytics. The report should consider a particular challenges faced by society or an opportunity for the human condition that can be addressed by data management technologies going forward.

Thirty five (35%) of the course evaluation is based on this research evaluation.

Exams

There are no tests or exams in this course.

Grade Disputes

Students are permitted to dispute any evaluation in the course. All student evaluation on participation, homework and project work, will be updated and made available to students on a continuous basis. Students are expected to dispute a particular evaluation within a one-week period of the availability of that evaluation. Failure to dispute a grade within this period indicates that the student has accepted that mark.
First round disputes must be made in writing either via email or in other written form to the instructor. Disputes should include convincing evidence as to why a particular mark should be changed. Convincing evidence should be logical and detailed as to why the assigned grade was not correct. If the dispute is not resolved to the student’s satisfaction, the student may then request a face-to-face meeting with the instructor to further discuss the particular issue.

**Final Evaluation Calculations**

Final course evaluation will be based on a weighted average of scores on all evaluated work.

The categories and weights are:

- **Participation (50 points)**: 20%
- **Homework (6 assignments)**: 30%
- **Midterm Paper**: 15%
- **Final Report**: 35%

Total: 100%

Final course grades will be tentatively assigned on the following scale:

- **A**: 95-100 %
- **A-**: 90-94.9%
- **B+**: 87-89.9%
- **B**: 83-86.9%
- **B-**: 80-82.9%
- **C+**: 77-79.9%
- **C**: 73-76.9%
- **C-**: 70-72.9%
- **D+**: 67-69.9%
- **D**: 63-66.9%
- **D-**: 60-62.9%
- **No Pass**: <60%

**Students with Disabilities**

In compliance with ADA guidelines, students who have any condition, either permanent or temporary, that might affect their ability to perform in this class are encouraged to inform the instructor at the beginning of the term. The University, through the Disability Services Office, will work with the appropriate faculty member who is asked to provide the accommodations for a student in determining what accommodations are suitable based on the documentation and the individual student needs. The granting of any accommodation will not be retroactive and cannot jeopardize the academic standards or integrity of the course.

**Academic Expectations**

In this course and in at Chapman University as a whole, we are a community of learners. Our commitment is to create an environment that advances the science and practice of managing organizations. As individuals, we conduct ourselves with honor and integrity, treat everyone with respect, take responsibility for our actions, and fulfill our promises.

Examples of conduct consistent with this expectation include:

- Taking initiative
- Crafting solutions
Completing assignments according to an agreed schedule
Offering constructive criticism and accepting it appreciatively
Taking responsibility for our own learning and that of others

We should all expect that someone who observes or learns about behavior inconsistent with these expectations of conduct to initiate corrective action by clarifying the situation and encouraging the responsible party to act appropriately.
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<thead>
<tr>
<th>Week</th>
<th>Class Day</th>
<th>Topic</th>
<th>Reading (for next class)</th>
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<td>Inventing Computers</td>
<td>Computer, Ch 4-6</td>
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<td>Commercialization of Computers</td>
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<td>Personal Computing and the Internet</td>
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<td>5</td>
<td>Sept 25</td>
<td>Algorithms</td>
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<td>12</td>
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<td>Limits of Computability</td>
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<td>Nov 15</td>
<td>Social Media and Technology</td>
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<td>Finals Week</td>
<td>TBA</td>
<td>Final Discussion</td>
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Tentative Reading List
A Brief History of Data, Information and Knowledge HON 329 02

Required


(Others may be added)

Other Texts


