

Course description/proposal

net.knowledge syllabus (CEGEP Humanities Knowledge stream course)

Course Goal: to familiarize students with basics of the technical nature and social aspects of computer networks.

Motivation behind course:

With the growing role of Internet in personal and professional life, an educated citizen benefits from a critical discussion of the structure and function of this network. I have encountered many people online (particularly, but not exclusively, the young), who have no sense of computing history or who lack a good grasp of the functioning of Internet. Even those with a firm grasp of the latter (such as computer scientists) are often still deficient in the former. Intellectual history (suitable for social science/liberal arts sorts of students) is also difficult to understand without technical knowledge. This course attempts to provide an integrated picture of all these aspects of understanding Internet.

Along the way we shall meet and correct various misunderstandings, such as that:

- The terms "Internet" and "World Wide Web" are synonymous
- Email is a good means to share files
- Wikipedia is a good source of information
- Internet is a good example of democracy

Outline:

Module 1: The Structure of Internet

- 1: Introduction, Hardware vs. Software, Introduction To Hardware
A general overview of computing systems.
- 2: Hardware Continued: ethernet, routers, hubs, switches, etc.
A discussion of some networking hardware.
- 3: Protocols
OSI 7 layer model (physical, data link, network, transport, session, presentation, application). Focus on the network layer and routing, etc. (very briefly)
- 4: Software: Email, Web browsing, IRC, Instant Messaging
Partially to distinguish web from Internet, partially to make some later discussion understandable
- 5: A look in detail at web pages (1): Form
HTML and CSS in broad scope (obviously not enough to use, but to get some appreciation of web implementation and understand common issues like secure pages, broken images, etc.).
- 6: A look in detail at web pages (2): Content
Sources of (dis)information. Case study: Wikipedia.
- 7: Security, Privacy and All That
Some means by which one can or should be secure.
(OS updates, protecting personal info, etc.)
- 8: Looking ahead: Encryption
Some aspects of how it works (non-mathematical) and some uses. China and search engines and an interesting proposal for the use of encryption.
- 9: Tutorial / Review
- 10: Examination 1

Module 2: Social Aspects of Internet

- 1: Why Study Social Aspects at All?
Expands upon some of the points in the "motivation" section, above.
- 2: The Digital Divide
Haves and have nots: economically, educationally, accessibility-wise, etc.

- 3: Spams, Scams, Phishing and More (1)
Ways to get hoodwinked online and how to avoid them.
- 4: Spams, Scams, Phishing and More (2)
More of the same.
- 5: Netiquette
Both normative and descriptive aspects.
- 6: A little history: BBSes
Using <http://www.bbsdokumentary.com/> and other sites as resources, plus my own historical recollection.
- 7: Open Source Software and a New (?) Form of Collaboration
What is Open Source Software? What are various OSS and related licenses?
Extending to more than software.
- 8: Internet as Democracy?
Yes and No. (This submodule could follow section 2.2 on the digital divide as it somewhat continues on the same theme.)
- 9: Tutorial / Review
- 10: Examination 2

Module 3: Student Initiated Work

- 1: Guidelines for selecting a topic
Students select, with the help of the instructor and the guidelines in this section, a topic which combines the technical and the social scientific aspects discussed in the course. They will create a presentation of approximately 5-6 minutes on this subject, to be presented in class in the last weeks of the course.
- 2: Guidelines for writing an abstract
200-250 words. This abstract must be written, submitted and approved prior to the work on the presentation. In this class students also discuss ideas in groups.
- 3: Assistance with writing / developing the project
Some discussion of further places to look, peer assistance. Submission and return of abstract during the peer assistance section.
- 4-10: Students give presentations.
See below for approximate grading breakdown.

Evaluation:

Two examinations: 60%

Fill in the blank questions: ~50%

Short answer: ~40%

These might include "problem solving" type activities (e.g., place the following in the appropriate categories; indicate which machine belongs on which network, etc.

Essay: 10% (200-300 words max)

Presentation: 30%

Interest: 10%

Style: 10%

Depth of research: 40%

Engaging the audience and answering instructor / peer questions: 20%

Effort: 10%

Abstract: 10%

Class Participation: 10%