



Information Visualization and Knowledge Management

Dept of Computer Science, UVic

Spring 2003

Today



- ? Course overview/mechanics of the course
- ? Survey
- ? Introductions
- ? Introduction to information visualization

Course Information

- ? **Course number:** Csc 586A and SENG 480A
- ? **Title:** Topics course:
Information Visualization & Knowledge Management
- ? **Units:** 1.5, expected work approx. 9 hours per week outside class, 3 hours in class
- ?
- ? **Lecture Hours:** Mondays/Thursdays 11:30-12:50
- ? **Web Page:** <http://www.cs.uvic.ca/~mstorey/teaching/infovis>
 - ? Check the site frequently (especially the news page)

Course Objectives

- ? Explore the basic principles underlying different *information visualization* techniques, and learn the fundamentals of *knowledge management*
- ? Examine various tools, techniques, visual metaphors
- ? Critique and evaluate different approaches
- ? Discover applications and domains that have or could benefit from the use of visualization
- ? Develop innovative visualizations to support information exploration, decision making, communication and information sharing in a variety of domains
- ? Evaluate your designs and propose future work

Note: Main focus is on visualizing abstract data that has no geometric or physical correspondence in the physical world

Course Topics

- ? Creative design and innovation
- ? Data, Information and Knowledge
- ? Cognition and visual perception
- ? External cognitive aids
- ? Knowledge representation
- ? Using 1D, 2D, 3D, >3D spaces for representing information
- ? Trees
- ? Networks
- ? Graph Drawing
- ? Interaction styles
- ? Searching, queries
- ? Focus + context
- ? Zoomable interfaces
- ? Hypertext, Document Visualization
- ? Visualization on and for the web
- ? Personalized information spaces
- ? Information Workspaces
- ? Collaborative environments for visualization and knowledge management
- ? Customizing visualizations
- ? Evaluation of information visualization tools
- ? Software visualization
- ? eLearning and entertainment visualization
- ? Visualizing and managing medical information and knowledge
- ? Mobile devices and shared devices
- ? Visualization and GIS systems

Instructor Information

? Instructor: Dr. Margaret-Anne (Peggy) Storey

? Office: EOW 313

? Office Hours:

? Mondays: 2:30-3:30

? By arrangement, email or call

? Email: mstorey@uvic.ca

? Phone: (250) 721 8796

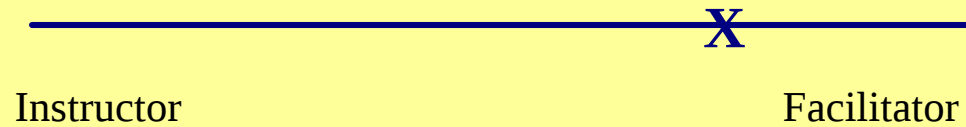
Who am I?

- ? Professor at University of Victoria, Computer Science
- ? Research interests:
 - ? Software Engineering
 - ? Reverse Engineering (CSER)
 - ? Information Visualization (NCI)
 - ? Specification visualization (MIT)
 - ? HCI and user interface design (IBM)
 - ? Web based learning tools (IBM)
- ? I have 2 young children
- ? I love to sail!

My teaching style for this course:



Instructor/Facilitator Continuum:



Class structure



- ? Discussion/activities (small and large group)
- ? Lectures
- ? Videos, guest speakers
- ? Live demos, active examples
- ? Group presentations
- ? Workshops

Deliverables & Expectations

- ? *Class Participation*: large and small group discussion and class activities based on assigned readings
 - ? You are expected to participate in discussions/activities
 - ? Readings should be read in advance of the lecture
 - ? You are expected to attend all lectures
- ? *5 Assignments* (completed individually)
- ? *5 Critiques* (of readings, also completed individually)
- ? *1 Project* (group size of 2-3 students, each group will have one grad student as a leader – groups will be selected by the instructor in a couple of weeks)

- ? *Note*: Auditors are asked to register and are required to do the readings and participate in class

Assignments/Critiques

? Critiques:

- ? Critique/compare readings, build on/refer to articles previously read and other relevant material
- ? Will be graded based on thoughtfulness, clarity, synthesis with prior and outside material
- ? Possible grades: Excellent, Good, OK, Not completed

? Assignments:

- ? Will also be graded according to thoroughness, thoughtfulness, originality, imagination, clarity etc.
- ? Example assignments Evaluate a tool using the framework described in paper x
- ? Apply tool y to a problem of your choice etc.
- ? Propose a presentation technique for a particular problem

Workshops



- ? There will be five classes in the term structured as workshops
- ? Each workshop will consist of one-two presentations by graduate students, followed by a discussion which will be hosted by two or three discussants (undergraduate students)
- ? The instructor will guide graduate students on material to present in the workshops. Material presented by graduate students should go beyond the readings assigned
- ? Discussants are responsible for setting discussion topics/questions and for chairing the discussion, as well as capturing notes and posting a summary on the web page
- ? Presenters and discussants should prepare the lecture collaboratively and seek advice from the instructor well in advance of the lecture

Grading Scheme -- Csc 586A

Assignments (5)	25%
Critiques (5)	10%
Course participation	15%
Project	50%

Note: no exams!

Grading Scheme -- SENG 480A

Assignments (5)	30%
Critiques (5)	15%
Course participation	5%
Project	50%

Note: no exams!

Preliminary important dates



Project proposal due:	February 17
Project presentations:	March 31/April 3
Project report due:	April 3
Assignment 1 due:	next Monday

See the schedule page for preliminary due dates for assignments and critiques

Computer use/programming requirements



- ? Programming may be required for some of assignments and for the project
- ? Let me know your programming expertise/interest in the surveys

Course Materials

? Textbook

? *Readings in Information Visualization: Using Vision to Think*, Edited by Card, MacKinlay and Shneiderman, Morgan Kaufmann, 2000.

? Recommended:

? Edward Tufte, information visualization proceedings, Colin Ware, (see web page)

? Course web page links to additional material

? To be updated throughout the term

? Send links to me (mstorey@uvic.ca) to add to the page

The book and the course....



Not all ideas discussed in the book (course) will be good ones – but they will help us explore the use of using computer visualization to help us communicate, explore knowledge, make decisions and to think

Course web page



? Home page

- ? Instructor information, course outline
- ? Tentative schedule information

? Course notes

- ? Slides (organized according to topic) will be posted here in pdf (suitable for printing) after class

? Links to extra material, readings

? Assignments/Project

? Student project presentations and reports will be posted on the site

? News

Everything you ever needed to know you learnt in kindergarten....



- ? So... in this class, we will have....
 - ? Circle time
 - ? Small group creative activities
 - ? Show and tell
 - ? Share our toys
 - ? Take turns
 - ? Use nice words and listen to others
 - ? Nap time and snacks
 - ? Storytime
 - ? Field trips??

Your expectations of me?

- ? That I make this course a positive and constructive experience
- ? Foster life-long learning and out-of-the-box thinking
- ? Listen to “reasonable” requests, I welcome constructive feedback
- ? Give adequate notice of assignments, due dates, changes etc
- ? That I answer email promptly, be available for questions after class and during office hours
- ? That I fix any “screw-ups” to the best of my ability (guaranteed to be some, I’m only human!)
- ? That I respect the fact that grades are important to you
- ? Any others?

Student survey sheets



- ? Please fill in the survey sheets being distributed
- ? Your participation is voluntary
- ? They will be used to guide material presented throughout the term and will be kept confidential
- ? In particular, do let me know if you are unsure whether you will continue taking the course (this is crucial so that I can plan for other students and the projects)



Introductions!

Rest of Today



- ? Motivation for taking this course
- ? Introduction to Information Visualization
- ? Framework for Information Visualization

Next lecture

? Topics:

- ? Cognitive Psychology/Visual Perception
- ? Visualization principles

Reading and Assignment #1



? Textbook Readings:

? Chapter 1: Information Visualization (pp. 1-35)

? Deliverable:

? Using the framework presented in chapter 1, critique a software tool that you have used in the past that allows you to present information visually. List any suggestions you have for improving it.

? Type assignments, print out, do not email

? Due next week (Monday) at the start of class