

MASSACHUSETTS INSTITUTE OF TECHNOLOGY  
Sloan School of Management

**15.561 Information Systems:**  
*From Information Infrastructure to Networked Corporation*

**Spring 2003**

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**Course Description:**

Broad coverage of technology concepts and trends underlying current and future developments in information technology, and fundamental principles for the effective use of computer-based information systems. There will be a special emphasis on networks and distributed computing, including the World Wide Web. Other topics include: hardware and operating systems, software development tools and processes, relational databases, security and cryptography, enterprise applications, and electronic commerce. Hands-on exposure to Web, database, and graphical user interface (GUI) tools. Primarily for Sloan Master's students.

Prerequisites: This course assumes only a minimal familiarity with computer technology and terminology. The course is not intended for students who have extensive technical expertise or experience.

**Class Times:** Half Term 2 (March 31 - May 14, 2003) NB: there will NOT be a final exam.

Section A: MWF 10 - 11:30 E51-151

Section B: MWF 1 - 2:30 E51-149

Section C: MWF 2:30 - 4 E51-149

**Instructors:**

Chris Dellarocas E53-315 258-8115 [dell@mit.edu](mailto:dell@mit.edu) <http://ccs.mit.edu/dell>

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**Teaching Assistants:**

Section A: Mark Kamal mkamal@MIT.EDU

Section B: Limor Sinay sinay@sloan.mit.edu

Section C: Felicia Hu felicia.hu@sloan.mit.edu

**Course Secretary:**

Yubettys Baez [ybaez@MIT.EDU](mailto:ybaez@MIT.EDU) E53-320 (617)253-2656. In her office suite will be kept hard copies of the course handouts, including readings handouts as well as syllabus, lecture slides, assignments, etc..

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Note that Yubettys does not handle the schedule for any of the instructors, however.

### Office Hours:

**TA Office Hours:** By appointment, to begin with. Fixed hours will be announced periodically during the course, e.g., timed in conjunction with the assignments.

**Instructor Office Hours:** By appointment.

### Readings:

The course material is available in the course reader from Graphic Arts (E52-045). It includes all the required readings (articles) to be covered in class. It also includes non-Web optional readings, which offer supplementary material on the topics discussed, except for optional readings that are available via the Web. There are also some optional textbooks (that are not included in the course reader!) and recommended Web material– see below for details.

### Grading:

Class participation	<b>20%</b>
Three Problem Sets	<b>30%</b>
Midterm Exam	<b>20%</b>
Team project	<b>30%</b>

(NB: There will be **NO final exam.**)

We view this course as a cooperative learning experience and expect students to engage the topics through hands-on assignments, readings, and thoughtful discussions in the classroom. Assignments provide an opportunity to gain hands-on experience with some of the tools and technologies covered in this course. They include (a) creating a personal home page, (b) working with a Microsoft Access database and (c) constructing a web-based survey form that collects in a database information provided people who fill out the survey on-line. The team project requires each team of students to produce a web site that documents some substantive area associated with business and information technology – whether through developing a case study or preparing a business plan. Teams should be prepared to discuss their projects in one of the final class sessions. **All assignments and the team project are to be received by the designated TA before class on the due date.**

### Logistics of Course Communications:

The course is included in SloanSpace (<http://sloanspace.mit.edu>). Postings there include the syllabus, lecture slides, and assignments. This material will be updated periodically during the course. Updates will be also be communicated on the class mailing list, and **it is your responsibility to be sure you are**

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**on this list.** To get onto the mailing list, please contact Felicia Hu, the TA responsible for maintaining the class mailing list.

### **Recommended Web materials:**

The PC Webopedia (<http://www.pcwebopedia.com>) is a Web site that serves as an encyclopedia of Information Technology terms. It provides excellent explanations of many Information Technology terms, together with links to additional web pages related to them. For many of the lectures, the course Web page contains pointers to the relevant category of the PC Webopedia. We strongly encourage you to use this valuable resource to clarify unanswered questions and to go beyond the material covered in class, according to your own personal interests.

### **Optional Textbooks:**

There are three optional textbooks. They are on reserve at Dewey Library.

Ron White, et. al. HOW COMPUTERS WORK (Millennium Edition), Zipf Davis (1999) . Good introductory text on the internals of computer hardware and system software. Recommended if you don't have a background in science or engineering.

Price Waterhouse's TECHNOLOGY FORECAST: 2002-2004 is available at the MIT Coop. In addition to a concise technical introduction to the various topics covered, it provides excellent surveys of the marketplace, including pointers to leading vendors and products, as well as assessments of trends and directions. Our recommendation: If you have no previous exposure in IT , you may find this a bit heavy. On the other hand, if you are interested in connecting the technological principles we will learn in the lectures with the marketplace, you will probably find this an excellent reference.

John L. Viescas. RUNNING MICROSOFT ACCESS 2000, Microsoft Press (1999).

One of the best and most detailed "bibles" on Microsoft Access.

Coverage is way beyond what will be covered in this course. This is an excellent reference book for students who are interested in becoming Microsoft Access experts.

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#	DATE	TOPIC	ASSIGNMENTS
1	<b>M 3/31</b>	<p><b>Introduction: Fundamentals of Computing (Malone)</b></p> <p>No readings.</p>	<b>Hand out:</b> Team Project Assignment
		<b>THE TECHNOLOGY</b>	
2	<b>W 4/2</b>	<p><b>Fundamentals of Computing II (Malone)</b></p> <p>No required readings.</p> <p><u>Optional:</u></p> <p>Laudon, K.C. and Laudon J.P. "What is a Computer System?" in <i>Management Information Systems: Organization and Technology</i>, NJ: Prentice-Hall, 1998, pp. 192-225.</p> <p>Walter S. Mossberg, "Do you really need a DDR SDRAM and 802.11b?" <i>Wall Street Journal</i>, December 4, 2002, p. D5.</p> <p>David Kirkpatrick, "See this chip?" <i>Fortune</i>, February 17, 2003, p. 79 (see especially first column of p. 80).</p>	<b>Hand out:</b> Problem Set 1 – build a simple Web home page
3	<b>F 4/4</b>	<p><b>Networks I (Malone)</b></p> <p>Mendelson, Haim, "A Note on Internet Technology." <i>Stanford University Graduate School of Business</i>, Teaching Note S-OIT-15, July 1999, pp. 1-17.</p> <p><u>Recommended:</u></p> <p>T tutorial on how the Internet works:  <a href="http://www.howstuffworks.com/internet-infrastructure.htm">http://www.howstuffworks.com/internet-infrastructure.htm</a>.</p> <p><u>Optional:</u></p> <p>James A. O'Brien, <i>Introduction to Information Systems</i>, Part 4, Section 2, pp. 164-178, Irwin Professional Publishing, 1994.</p>	
4	<b>M 4/7</b>	<p><b>Networks II (Malone)</b></p> <p>Mendelson, Haim, "A Note on Internet Technology," <i>Stanford University Graduate School of Business</i>, Teaching Note S-OIT-15, July 1999, pp. 18-27.</p> <p><u>Optional:</u></p> <p>William Stallings, <i>Data and Computer Communications</i> (ed. 5), Prentice Hall, 1997, pp. 164-178, 402-407, 413-419, 498-526,</p> <p>James Aley, "Heads we win, tails we win", <i>Fortune</i>, March 3, 2003, pp. 142-150.</p>	

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5	<b>W 4/9</b>	<b>Software Development I (Malone)</b> No readings.	
6	<b>F 4/11</b>	<b>Software Development II (Malone)</b> Gibbs, W.W. "Software's Chronic Crisis," <i>Scientific American</i> , September 1994, pp. 86-95. Cafasso, R. "Few IS Projects Come in on Time, on Budget," <i>Computerworld</i> , December 12, 1994, p. 20. <u>Optional:</u> The Linux Uprising (Special Report), <i>Business Week</i> , March 3, 2003, pp. 78-86.	
7	<b>M 4/14</b>	<b>Databases/SQL (Dellarocas)</b> Elmasri and Navathe. <i>Fundamentals of Database Systems</i> , Benjamin/Cummings, 1989: Chapter 7 (plus pp. 143-144). PC Webopedia – Databases category page <a href="http://www.pcwebopedia.com/Databases_cat.html">http://www.pcwebopedia.com/Databases_cat.html</a>	<b>Due:</b> Description and members for team project  <b>Hand out:</b> Problem Set 2 – Microsoft Access
8	<b>W 4/16</b>	<b>Microsoft Access (database tool) (Dellarocas)</b> Watterson, Karen. <i>Visual Basic Database Programming</i> , Addison-Wesley, 1994, pp. 12-43. <u>Optional Textbook:</u> John L. Viescas. <i>RUNNING MICROSOFT ACCESS 2000</i> , Microsoft Press (1999).	<b>Due:</b> Problem Set 1
9	<b>F 4/18</b>	<b>Web Technologies Basics (Dellarocas)</b> Orfali, R. <i>et al.</i> <i>Client/Server Survival Guide</i> (3 <sup>rd</sup> Edition), Wiley 1999, chapters 26-27. <u>Optional:</u> Wright, R. The Man Who Invented the Web. <i>Time</i> , May 19, 1997. PC Webopedia – World Wide Web category page <a href="http://www.pcwebopedia.com/World_Wide_Web_cat.html">http://www.pcwebopedia.com/World_Wide_Web_cat.html</a>	
	<b>M 4/21</b>	<b>Patriot's Day – NO CLASS</b> <i>MIT Holiday</i>	

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10	W 4/23	<p><b>Computer Security/Cryptography (Dellarocas)</b></p> <p>Behar, R. Who's reading your e-mail. <i>Fortune</i>, Feb. 3, 1997, pp. 57-70.</p> <p><u>Optional:</u></p> <p>Zimmerman, Phil. An Introduction to Cryptography. Read Chapter 1, skim Chapter 2 (included in PGP documentation, PGP freeware downloadable from <a href="http://web.mit.edu/network/pgp.html">http://web.mit.edu/network/pgp.html</a>)</p> <p>PC Webopedia - Encryption category page (<a href="http://www.pcwebopedia.com/Encryption_cat.html">http://www.pcwebopedia.com/Encryption_cat.html</a>)</p> <p>Terms to look up: symmetric-key cryptography, DES, public-key encryption, RSA, Pretty Good Privacy, authentication, digital signature, digital certificate, PKI, SSL, digital cash, smart card.</p>	
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APPLICATIONS OF TECHNOLOGY			
11	F 4/25	<p><b>Microsoft Frontpage (user interface tool for database forms and reports) (Dellarocas)</b></p> <p>On-line tutorial: <a href="http://www.actden.com/fp2000/java">http://www.actden.com/fp2000/java</a></p>	<p><b>Due:</b> Problem Set 2</p> <p><b>Hand out:</b> Problem Set 3 – Microsoft Frontpage</p>
12	M 4/28	<b>Mid-term Exam</b>	
13	W 4/30	<p><b>Enterprise Systems (Malone)</b></p> <p>Davenport, T.H. "Putting the Enterprise into the Enterprise System," <i>Harvard Business Review</i>, August 1998, pp. 121-131.</p> <p>An Eagle Eye on Customers, <i>Business Week</i>, February 21, 2000, pp. 66-76.</p>	
14	F 5/2	<p><b>"Under the Hood" of a Commercial Website (Dellarocas)</b></p> <p>How it Works, <i>Business 2.0</i>, Feb. 2000, pp. 112-140.</p>	

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15	<b>M 5/5</b>	<p><b>B2B Information Systems / XML (Malone)</b></p> <p>John Hagel III and John Seely Brown, Your Next IT Strategy, <i>Harvard Business Review</i>, October 2001, Reprint No. R0109G.</p> <p>Otis Port, "The Next Web", <i>Business Week</i>, March 4, 2002, p. 96.</p> <p>Jim Kerstetter, "The Web at Your Service", <i>Business Week</i>, March 18, 2002, p. EB 12.</p>	
16	<b>W 5/7</b>	<p><b>Data Warehousing; Data Mining; Knowledge Management (Dellarocas)</b></p> <p>Two Crows Corporation. <i>Introduction to Data Mining and Knowledge Discovery</i>, 1999.</p>	<b>Due:</b> Problem Set 3
17	<b>F 5/9</b>	<p><b>Team Project Summaries I (Malone)</b></p>	<b>Due:</b> Team Project Writeups Team Project Presentations
18	<b>M 5/12</b>	<p><b>Team Project Summaries II (Malone)</b></p>	
19	<b>W 5/14</b>	<p><b>Emerging Technologies; Course Wrap-up (Malone)</b></p> <p><b>Readings to be distributed in class.</b></p> <p>Wrap-up includes: discussion of lessons from team projects and key course themes.</p>	