

Fluency With Information Technology
CSE100/INFO100

Please pick up a syllabus.



Batya Friedman & Larry Snyder, Instructors
Jeremy Baer, Yana Kadiyska & Grace
Whiteaker (Head TA), Teaching Assistants
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 Teaching Staff

❖ Instructors

- ❖ Batya Friedman, batya@u
- ❖ Larry Snyder, snyder@cs

❖ Teaching Assistants

- ❖ Grace Whiteaker (Head TA), gbwhit23@u
- ❖ Jeremy Baer, jbaer@cs
- ❖ Yana Kadiyska, yana@u

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Fluency With Information Technology

- ❖ Fluency is designed to teach you the fundamentals, mostly by hands-on practice
 - ❖ Skills -- Email with PINE, Web browsing with Netscape, MS Word, MS Excel, MS Access and work with UW databases, Dr. Solomon virus protection ...
 - ❖ Concepts -- workings of computer, networks, encryption, digital encoding, programming and algorithmic thinking, effective searching ...
 - ❖ Capabilities -- logical reasoning, debugging, testing, thinking abstractly about technology, managing complexity ...
- ❖ Projects are the key to this course -- mostly the class is doing stuff ... make a web page

This class is not what you need to know about IT ... it's what you need to know to learn what you need to know about IT

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Is FIT 100 Right For Me?

- ❖ Fluency acquisition takes a significant amount of time in the lab
- ❖ Students in previous classes thought ...
 - ❖ FIT100 was very valuable
 - ❖ Expanded their thinking
- ❖ Options ...
 - ❖ To learn specific skills like making a Web page, see UWired
 - ❖ If you are a "techie" or have significant experience with computers, plan on taking CSE142
 - ❖ CSE100/INFO100 will probably be offered next in Autumn '00

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Perspectives on Rate-of-Change

- ❖ On 7 July 1999 Moroccan Hicham El Guerrouj ran a mile in 3 minutes 43.13 seconds, 1.26 seconds better than Noureddine Moreceli
 - ❖ El Guerrouj “smashed” “eclipsed” “shattered” record
- ❖ Roger Bannister broke the “4 minute mile barrier” in 1954 with 3:59.4
- ❖ As a rate this is an astonishing improvement in 45 years from 15.04 mph to 16.13 mph, or 7%

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Normal People & The Mile Run

- ❖ On average people in their early 20s can run a mile in about 7:30, or about twice the time it takes El Guerrouj
- ❖ This factor-of-2 difference between average people and world record holders is typical for physical activities like running, jumping, swimming, etc.
 - ❖ No matter how hard we try, we can improve by at most a factor-of-2

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Scale of Advancement ...

- ❖ The Wright's Flyer 1 flew so slowly that the brother who wasn't piloting ran along side ... a ground speed of 10 mph
- ❖ NASA says the SR-71 Blackbird, a reconnaissance aircraft, flies at least 2200 mph

The Blackbird is faster than Flyer 1 by a factor-of-220 times or so ...



Computer Speeds

- ❖ The 1951 UNIVAC I performed 100,000 additions per second
- ❖ IBM's Think Pad laptop does 500 million adds per second, a factor-of-5000 over UNIVAC I
- ❖ Intel's custom ASCI Red computer built for Sandia National Labs holds the world record at 2.1 trillion (floating point) additions per second
 - ❖ ASCI Red is a factor-of-21,000,000 times faster than UNIVAC I

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Scale of Advancement ...

- ❖ We can comprehend ...
 - ❖ El Guerrouj's factor-of-1.07 over Bannister
 - ❖ El Guerrouj's factor-of-2 over average 20 year old
 - ❖ Possibly Blackbird's factor-of-220 of Flyer 1
- ❖ Can we comprehend a factor-of-21,000,000? Or even a factor-of-5000?

Had El Guerrouj improved on Bannister by a factor-of-21,000,000, he would have run the mile in 11.4 *microseconds*

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A Human Sense of Time vs. A Computational Sense of Time

- ❖ Everyday PCs do hundreds of millions of computations per second.
- ❖ Specialized computers do over two trillion computations per second.
- ❖ The fastest human typist types at roughly 160 words per minute.
- ❖ QUESTION: When you enter data into a computer or type a document, who is waiting for whom?

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Physiological Time

- ❖ Human physiology developed out of our evolutionary biology.
- ❖ We need to perceive rapidly enough and react quickly enough to (a) hide from predators, (b) catch prey, and (c) swat mosquitoes. In fact, because we're clever, we can be even slower than our predators and our prey because we can outsmart them...
- ❖ Human perception and reaction time is on the order of tenths and hundredths of seconds.
- ❖ QUESTION: How do we design an interface between a human being who reacts on the order of tenths of seconds and a machine that computes on the order of millionths of seconds?

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Socio-Cultural Time

- ❖ Human societies build upon (and extend) our evolutionary biology as well.
- ❖ We need social interaction and connection, as well as down time, rest, and, some would argue, even privacy to flourish as human beings.
- ❖ QUESTION: How do we design a technology that at excels at connecting people and fostering social interaction while at the same time allows for down time, rest, and privacy?

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FIT 100 Syllabus

- ❖ Course work, Workload, and Late Policy
 - ❖ Lecture
 - ❖ Labs, 1-hour, 2 times a week
 - ❖ 4 Quizzes: Apr. 4, Apr. 18, May 2, May 16
 - ❖ 4 Projects (each in 2 parts)
 - ❖ Final Exam: June 4, 8:30-10:20 AM
 - ❖ Workload: 10-15 hours/week outside of class
 - ❖ Late Policy: One project 1-day late.

- ❖ Required Course Materials and Texts

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- ❖ How to Communicate with Others...
 - ❖ Listserv (subscribe during first lab)
 - ❖ Email
 - ❖ Anonymous email

- ❖ Getting Unstuck...
 - ❖ Debugging
 - ❖ Ask a classmate...
 - ❖ Consult with a TA

- ❖ Cooperation and Collaboration

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FIT 100 Syllabus

- ❖ **IMPORTANT – IMMEDIATE ACTION ITEM**

- ❖ 1. Reading for Wednesday Lecture: FIT Chap. 1, 2, & 4

- ❖ 2. IF you don't have or don't know how to:
 - ❖ UW computer account
 - ❖ Use the PINE email system and Web mail
 - ❖ Understand an email directory
 - ❖ Enable a student Web page...

- ❖ THEN YOU **MUST** ATTEND A 1-HOUR PRE-LAB WORKSHOP
 - ❖ Room 030 Mary Gates Hall
 - ❖ Monday (tonight), March 26 at 7:00 PM and 8:00 PM
 - ❖ Tuesday (tomorrow), March 27 at 7:30 PM and 8:30 PM