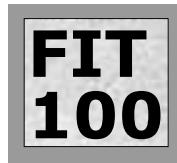


# Fluency With Information Technology

## CSE100/IMT100



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University of Washington, Autumn 1999

# Fluency With Information Technology

Goal: Teach you everything you need to know to use information technology effectively throughout your life

... but information technology changes *very* rapidly, so the real goal is to make you a “life long learner” of IT

- ❖ There are three kinds of knowledge we will teach
  - Skills, such as how to use email, WWW, word processing etc.
  - Concepts, such as how computers work, how networks work etc.
  - Capabilities, such as logical reasoning, managing complexity etc.
- ❖ Projects are the key to this course -- mostly the class is doing stuff ... make a web page, solve world hunger

This may be the coolest class you ever take at UW

Fluency with information technology is a new concept derived from a National Research Council study on “What everyone should know about information technology”



- ❑ The committee abbreviated “fluency with information technology” by FIT, and being fluent as FITness
- ❑ FITness replaces “computer literacy” with knowledge that has “staying power” for the rapid changes in information technology

*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*

CSE100 in (Sp99) was first-ever try at the NRC's recommendations for fluency

## Faster Than a Speeding Bullet

- ❖ The rate-of-change in information technology is unprecedented
- ❖ To give perspective, a college education has an “expected useful lifetime” of 55 years
  - ❑ Electronic computers are 53 years old
  - ❑ ARPANet came on-line 30 years ago
  - ❑ The term “PC,” as in personal computer, is less than 20 years old
  - ❑ WWW has been “visible” less than 5 years
- ❖ How do you prepare? Learn the fundamentals!



## Perspectives on Scale

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- ❖ 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%

## 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

## Scale of Advancement ...

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- ❖ The Wright's Flyer 1 flew so slowly that the brother who wasn't piloting ran along side ...
  - ❑ Suppose that implies a 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

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- ❖ 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



## Scale of Advancement ...

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- ❖ 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*

## Keeping Up Through Fluency

- ❖ 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 ...
- ❖ This knowledge should be useful throughout college and throughout life

## Is FIT 100 Right For Me?

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- ❖ Fluency acquisition takes a significant amount of time in the lab
- ❖ Students in Spring 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/IMT100 will probably be offered next in Autumn ‘00

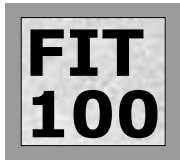


# Class Structure

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- ❖ Three lectures per week
- ❖ Two lab sections per week
- ❖ Few formal testing situations
  - ❑ 4 short in-class quizzes
  - ❑ Short (< 1 hour) final
- ❖ Projects and assignments are the basis for most grades ... use of “ternary system” will be common
  - “0” -- nothing turned in, incomplete, unsatisfactory
  - “1” -- satisfactory completion
  - “2” -- truly extraordinary (rare)

Attendance is essential



## Specifics ...

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### ❖ Text books

- ❑ Lawrence Snyder, Fluency With Information Technology, Professional Copy 'N' Print, 4200 University Ave
- ❑ Alan Eliason and Ryan Malarkey, Visual Basic 6: Environment, Programming and Applications, Que Press

### ❖ Instructors:

- ❑ Larry Snyder `snyder@cs`
- ❑ Mel Oyler `melo@u`

### ❖ Teaching Assistants by section

- ❑ Gerome Miklau AA, AB `gerome@cs`
- ❑ Ariel Kemp AC, AD `ajkemp@u`
- ❑ Isaac Kunen AE, AF `zook@cs`
- ❑ Sean Squires AG, AH `squires@u`

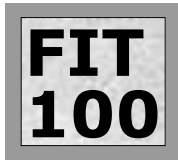
## Vocabulary

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- ❖ What is “information technology”?
- ❖ Information Technology (IT) is the totality of computers, networks and communication, software, information resources etc.

*There will be a huge number of new terms used in this class. They will generally be defined when they are first used, but if not ... ask! Use your whistle! The surest way to be successful in FIT100 is to understand the terminology*

Factoid: “email” is the Czech word for enamel



## To Be Successful In FIT100 ...

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- ❖ Attend classes and labs religiously
- ❖ Ask questions when you don't understand something
- ❖ Start assignments early ... even if you do only a small amount
- ❖ Ask questions when you don't understand something
- ❖ Look for resources from Web page  
<http://www.cs.washington.edu/100/>  
email archive, classmates and TAs
- ❖ Ask questions when you don't understand something
- ❖ Spend some time each day in the lab
- ❖ Ask questions when you don't understand something

## Assignment 0

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Assignment 0 is to help you to familiarize yourself with the basics of email and the web at UW

- ❑ For this assignment you can get help from a friend, a lab consultant or President McCormick
- ❑ Steps 1-4 of Assignment 0 are due before lab tomorrow
- ❑ Steps 5-11 of Assignment 0 is due before class on Wednesday

*We ask you to get your UWNetID on your own and to learn to send email on your own because it's really easy to do (follow the instructions on the sheet or ask a friend for help), and once you have done it you will be on your way towards using IT independently*

If it seems too daunting, please see me at my office 426D Sieg Hall



## *Gilligan's Island Rule*

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- ❖ You may work with anyone provided you don't take a written record away from the meeting ... including notes, electronic notes, white/black board, etc.
- ❖ Indulge in at least 1/2 hour of mindless activity before doing your task ... *Gilligan's Island* is a 60s TV show that set the standard for mindlessness

The goal is to assure that the work you create uses your own brain, unassisted

- ❖ Note who you worked with on your assignment

# **FIT 100** Summary

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- ❖ Welcome to FIT100
- ❖ It's a fun class where you learn a lot of things that you can apply immediately, later in college and throughout life
- ❖ If you are not registered for FIT100, do so immediately
- ❖ Don't forget --
  - ❑ Homework due for tomorrow's lab
  - ❑ Bring you whistle