Welcome to FIT 100!

Fluency with Information Technology

Please pick up a syllabus

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What is the goal of FITness?

- To make you life-long learners of Information Technology. This is no small feat!
- To give you the ability to adapt to unexpected situations involving technologies you know, and those you don’t
- Fluency:
  - The quality or state of flowing or being fluent
  - A smooth and easy flow
- More than just computer literacy, fluency involves three kinds of knowledge:
  - Skills
  - Concepts
  - Capabilities

What is the product life of your education?

- College education is expected to have a useful lifetime of 55 years
- What should a graduate of the Class of 1946 have been taught since:
  - The first electronic computer had just been invented
  - The first computer network wouldn’t be around for 25 years
  - The term “personal computer” wouldn’t arrive for 35 years
  - The World Wide Web wouldn’t be around for essentially 50 years

Skills

- FIT 100 is designed to teach you fundamental skills, such as:
  - Email with Pine
  - Web browsing with Netscape or Internet Explorer
  - Web page creation and publication
  - Search and evaluation of information
  - Use of the Visual Basic programming language
  - MS Access and work with databases
- But technology changes faster than we can all keep up with, so in addition....
FIT 100 Concepts

- FIT 100 is designed to teach you fundamental concepts that go beyond individual technologies:
  - How a computer works on the inside
  - Networks and other Information Systems
  - Digital representation of information
  - Programming and algorithmic thinking
  - Effective searching of Information Systems
  - Societal impact of Information and IT
- But, to bring the concepts and skills together, you will still need to enhance...

FIT 100 Capabilities

- FIT 100 is designed to enhance your core capabilities:
  - Engage in logical and sustained reasoning
  - Problem solving
  - Expecting the unexpected
  - Communication to others
  - Anticipation of changing technologies
  - Thinking about IT abstractly

FIT 100 Fluency with Information Technology

- Projects are the key to this course.
- This class is mostly doing stuff, but it requires:
  - Acquiring the skills to use the technology
  - Combined with an understanding of the concepts behind the technology
  - Roudned out by capabilities - reasoning, problem solving, etc. - to complete the project successfully
- 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

FIT 100 Expectations

- Lecture and Lab attendance is required.
- Lecture Times:
  - M W F 10:30 am – 11:20 am MGH 389
- Lab Times
  - AA M, W 12:30 – 1:20 MGH 030
  - AB M, W 1:30 – 2:20 MGH 030
  - AC T, TH 8:30 – 9:20 OUGL Collab 2
  - AD T, TH 9:30 – 10:20 OUGL Collab 2
  - AE T, TH 1:30 – 2:20 MGH 044
  - AF T, TH 2:30 – 3:20 MGH 044
### Course Work
- 4 Quizzes
  - Worth 5% each
- 4 Assignments
  - Part of lab grade
- Lab Work
  - 4% of total grade
- 4 Projects (each one has 2 parts)
  - Worth 14% each
- Final Exam
  - 20% of total grade

### Late Policy
- You will submit electronic files as well paper copies for Projects
  - The paper is so we have a way to give you Project feedback
- You are allowed to turn in ONE Project, 1-day late
  - Attach and email your project to your TA within 24 hours of the original due date.
- Once you have used your freebie, no other late projects will be accepted.

### How to be successful in FIT 100
- Attend all lectures and labs
  - Labs are offered M, W and T, TH.
- Ask questions when you don’t understand something.
- Start assignments early...don’t wait until the night before!
- Ask questions when you don’t understand something.
- Spend some time each day in the lab (there are labs open until 10 pm M-F)
- Ask questions when you don’t understand something.

### Bulletin Board and Class Communication
- Communicating with Instructors, TAs and classmates...
  - Bulletin Board
  - Email – List Server
  - Anonymous email
- Getting Unstuck
  - Debugging
  - Ask a classmate (use the List Server or Bulletin Board)
  - Consult with the Instructor or TA
- Cooperation and Collaboration
So, you ask yourself…. Is FIT 100 right for me?

- Fluency acquisition takes a significant amount of time in the lab
  - Not just the scheduled labs sessions, but above and beyond that.
  - 7-15 hours per week outside of Lecture and Labs
  - Getting behind is costly
  - Budget your time!

- However, students in previous classes thought….
  - FIT 100 was very valuable, even though it involved a lot of work
  - FIT 100 expanded their thinking and brought precision to their thinking

Options to FIT 100

- If you just want to learn one specific skill
  - UWired and CAC offer classes on Web Pages, Databases, etc.

- If you are a “techie” or have significant experience with computers, plan on taking CSE 142

- If you cannot make the time commitment this quarter
  - FIT 100 (CSE/INFO 100) will be offered every quarter from now on.
  - You could choose to take in Winter, Spring or Summer quarter

Course Source Materials

- There is one required text:
  - "Fluency with Information Technology"

- There are two optional, but highly recommended, texts:
  - "HTML for the World Wide Web" by E. Castro
  - "Learn to Program with Visual Basic 6" by J. Smiley

- We will also supply the addresses of Web sites containing supplementary source material

It seems like just yesterday when typewriters were all the rage…..

And other quaint remembrances of a few years ago

Rates of Change in the IT Age
Rates of change: A little perspective

- July 7, 1999: Moroccan runner Hicham El Guerrouj does a mile in 3:43.13
  - 1.26 seconds better than Nouredine Moreceli, the world record holder at the time
  - The media everywhere reported that El Guerrouj “smashed” “eclipsed” “shattered” the record
- Roger Bannister was the first to “smash” “break” the 4-minute mile barrier in 1954 at 3:59.4
- An astonishing improvement in 45 years — from 15.04 mph to 16.13 mph
  - A rate of change of 7%

Normal People & The Mile Run

- On average, people in their early 20’s can run a mile in about 7:30, in other words, 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 Technological Advancement

- The Wright’s Flyer 1 flew so slowly that one brother could run alongside as the other one piloted… a ground speed of 10 mph
- NASA states that 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 1 performed 100,000 additions per second
  - How fast can you add?
- IBM’s Think Pad laptop does 500 million adds per second, a factor-of-5000 over UNIVAC 1
- 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 1
**Moore's Law and Human Use of Computers**

- Observed by Gordon Moore in 1965:
  - Microchip processor data storage capacities double every year to 18 months
- Most computers are underutilized and spend most of their time, even while being used, sitting idle.
- How fast is fast enough? Do we have the capabilities to sense the difference?

**Comprehension of Advancement**

- We can comprehend…
  - El Guerrouj’s factor-of-1.07 over Bannister
  - El Guerrouj’s factor-of-2 over the average 20 year old
  - Possibly Blackbird’s factor-of-220 over Flyer 1
- But, can we comprehend a factor-of-21,000,000? Or even a factor-of-5000?

**What if…?**

- If El Guerrouj had improved by the same factor over Bannister (factor-of-21,000,000)…
  - He would have run the mile in 11.4 microseconds
- Human visual perception is so slow that El Guerrouj could run 3000 miles before anyone noticed he moved
- El Guerrouj would have finished the mile before the sound of the starting gun was heard
  - A feat that is, quite literally, incomprehensible

**Transparency?**

- Predictions
  - Processing speeds will max out within 10 years
  - Information processing with technology will be woven into our everyday lives, embedded into a variety of systems
  - Our reliance on computers will increase
- Software “tools” to process information will be where our comprehension of computing power takes place
- Fluency in IT will help us stay aware and ahead of those changes we can comprehend
Changes that IT brings

- Nowhere is Remote
  - Or is everywhere remote?
- World Connectivity
- Changes in the Human Idea of Relationships
- English as a Universal Language
- Freedom of Speech and Assembly

Le Mot Juste

- We've talked about Information Technology for a class and a half now – so what does it mean?

Information Technology:
The totality of computers, networks and communication, software, information resources, digital media and other related forms of information and technology, etc.

Precision in Word Use

- Many terms and acronyms, often with more than one definition.
- Use the definitions as you come across them in theFIT course pack AND any other technology dictionary that you find useful.
- Remember, precision in term use means precision in understanding the ideas the term embodies.
- If we understand the terms and how to use them, people who also understand the terms will understand us.

Important!!!!!

- Reading for Wednesday
  - Chapters 1, 2 and 4 of Fluency with Information Technology
  - This is the course pack for FIT 100
  - Pick up at the course pack at Professional Copy & Print
    - 4200 University Way (corner of 42nd and The Ave)
- If you don’t have or don’t know how to:
  - UW computer account
  - Use the PINE email system and WebMail
  - Understand an email directory
  - Enable your student web page
- Then you MUST attend a pre-lab Workshop
  - Room 430 Mary Gates Hall
  - Monday (tonight) from 7:30 – 8:30 PM