Please pick up a syllabus

Welcome to FIT 100!

Fluency with Information Technology

CSE100 = INFO100 = FIT100

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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 1947 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

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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…

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 need to work on…

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

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
  - ☐ Rounded 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
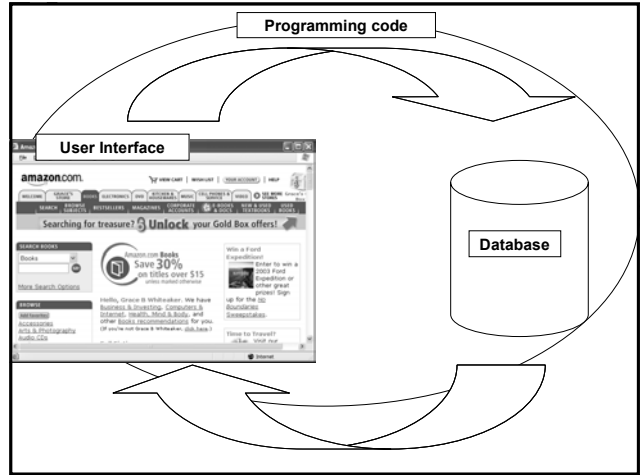
When and Where

- Lecture and Lab attendance is expected.
  - □ If you don't attend every day, you will lose some credit opportunities and probably fall behind.

- Lectures
  - □ M, W, F   10:30 am – 11:20 am   MGH 389

- Labs: You are enrolled in ONE of these!
  - □ M, W   12:30 – 1:20 PM   AA   MGH 044
  - □ M, W   1:30   – 2:20 PM   AB   MGH 044
  - □ T, TH   8:30   – 9:20 AM   AC   MGH 030
  - □ T, TH   9:30   –10:20 AM   AD   MGH 030
  - □ T, TH   1:30   – 2:20 PM   AE   MGH 044
  - □ T, TH   2:30   – 3:20 PM   AF   MGH 044

Course Work

- Labs and Assignments

- 3 Projects (each with 2 or more parts)

- 2 Midterms

- Mini-Quizzes
  - □ Short, unannounced, covering current readings (includes lab reading) and project readings

- Comprehensive Final Exam
  - □ Friday, December 13th, 8:30 a.m.
  - □ The exam will not be given at any other time. Please don't make travel plans which would prevent you from taking it.

Homework Policy

- May be a combination of electronic and paper submissions
  - □ Each assignment will have instructions for turning it in.

- You are allowed to turn in ONE project up to 1-day late
  - □ Once you have used your freebie, no other late projects will be accepted.

- Tip: Always turn in what you have completed up to the due date.
  - □ You can't get partial credit if you have nothing partial turned in!!!!!

Expectations

- What are your responsibilities as a student in FIT100?

- What should be my responsibilities to you as a teacher?

- What do you expect from me?

- What do you expect from yourselves?

Class Communication

- Course web site:
  http://courses.washington.edu/fit100/au02

- Communicating with Instructor and classmates…
  - □ Bulletin Board
  - □ Official Announcements: Email – List Server
  - □ Anonymous email

- Office Hours
  - □ Posted on the web

Working with Others

Cooperation is important in many aspects of life

- A fellow student may be able to help you get unstuck, or explain something better than the instructor

- But: if you don't do your own work, you won't learn.

- Using someone else's work, without acknowledging it, is plagiarism and is against the rules.

- Letting someone help you too much is against the rules.

- Letting someone copy your work is against the rules.

Some Numbers.....

If you make a solid attempt at this class, you will pass

- 75   Percentage of students who pass this class with a 2.0 or better. They attempted all projects, came to class and lab, took all exams

- 25   Percentage of students who earn less than a 2.0. They don't come to labs or class that often and don't attempt 2 or more project pieces or exams.

- 9   The number of students sent to Conduct Committee last Spring who are now on Academic Probation until graduation.

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 (and I do mean a LOT!)
  - □ FIT 100 expanded 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.
  - http://www.washington.edu/computing/catalog/gen/Catalog.html

- If you are a "techie" or have significant experience with computers, you might consider CSE 142, the Intro to Programming course

- If you cannot make the time commitment this quarter
  - □ FIT 100 (CSE/INFO 100) is offered every quarter

Course Materials

- There are two required texts:
  - □ "Fluency with Information Technology" by L. Snyder
  - □ "HTML for the World Wide Web" by E. Castro
- And one optional
  - □ "JavaScript for the World Wide Web" by T. Negrino

- There will be reserve copies of all three texts available at Odegaard Undergraduate Library for 2 hour checkout periods

- I may also require reading of handouts or web pages
  - □ They will be linked from the Calendar page

FASTER!!!!!!

The rates of change in technology increase by the hour. But the question is…..

Are we racing to catch up to technology or is technology racing to keep up with us?

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 White computer built for the US Energy Department holds the world record at 12 trillion (floating point) additions per second

  - □ ASCI White is a factor-of-120,000,000 times faster than UNIVAC 1

  Trivia Note:
  Sandia National Laboratories recently partnered with Compac to create a computer to handle 100 trillion computations per second

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.

- Chip density, and thus processing speed, will probably max out within 10 years

- 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-120,000,000? Or even a factor-of-5000?

What if….?

- If El Guerrouj had improved by the same factor over Bannister (factor-of-120,000,000)…

  - □ He would have run the mile in .19 microseconds

- Human visual perception is so slow that El Guerrouj could run 18,000 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
    - "ubiquitous computing"
  - □ 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

Homework!!!!!

- Reading for Wednesday
  - □ The syllabus
  - □ Fluency Book chapters – which ones? Find out on the Web

- Assigment 0
  - □ Find it… you know where!