Welcome to FIT 100!
Fluency with Information Technology

CSE100 = INFO100 = FIT100

Please pick up a syllabus

Course Staff

Jointly taught by Computer Science and Engineering Department (CSE) and School of Information Science (IS)

Instructor: Martin Dickey (IS)
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What is the goal of FITness?

- To make you life-long learners of Information Technology.
- 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? In 1946:
  - 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
FIT 100 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
- 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

Lectures:
- M W F 10:30 am – 11:20 am MGH 389
- Led by Martin and Grace

Lab Sections AA-AF
- Tu-Th or W-F
- Led by TAs
- Memorize your section ID!
- Attend the same section always
- Check STAR for times and for last-minute location changes

Course Work

- Lab-related assignments
- 3-4 Projects (may have multiple parts each)
- Two midterm exams
- MiniQuizzes
  - Short, unannounced, covering current reading and assignments
- Participation and class service
- Comprehensive Final Exam
  - Monday, March 18, 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.

How to be successful in FIT 100

- Attend all lectures and lab sections
- 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 on the computer (there are campus labs open until 10 pm M-F)
- Ask questions when you don’t understand something.
Class Communication

- Course website: http://www.cs.washington.edu/education/courses/100/02wi/index.shtml
- Communicating with instructors, TAs, and classmates...
  - Bulletin Board
  - Email–List Server
  - Anonymous email
  - Direct mail to a staff member is OK, if it is something only that person can help with.
- Office Hours
  - Will be posted on the web
  - You can go to any staff person’s office hours, not just your own TA.

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.
  - CSE100 staff will be alert for and will prosecute cases of inappropriate 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 lab 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

Alternatives to FIT 100

- If you just want to learn one specific skill
  - UWired and CAC offer classes on Web Pages, Databases, etc.
- The intro to programming class, CSE142, is very different from FIT100
  - FIT100 is not a prereq for CSE142, but will make you more prepared to take it
- If you cannot make the time commitment…
  - Taking FIT100 is a bad idea
Course Materials

- There is one required text:
  - "Fluency with Information Technology" by L. Snyder
    - Available at Professional Copy & Print, 4200 University Way (corner of 42nd and The Ave)
- There are two optional, but highly recommended texts. Both will be on reserve in the Engineering Library:
  - "HTML for the World Wide Web" by E. Castro
  - "Learn to Program with Visual Basic 6" by J. Smiley
- We may also require reading of handouts or web pages
- You will need some diskettes and a lab notebook

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
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…

The 1951 UNIVAC 1 performed 100,000 additions per second.

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.

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?

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 the FIT 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.

Homework!!!!!

- 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 work through the pre-lab Workshop.
  - You must have all of these skills by the time of your first lab section.
- Reading for Wednesday:
  - The syllabus
  - Course packet chapters – which ones? Find out on the Web
- Project 0:
  - Find it... you know where