



Welcome to FIT 100!

Fluency with Information Technology
CSE100 = INFO100 = FIT100

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

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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
 - ❑ The World Wide Web wouldn't be around for essentially 50 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....

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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 need to work on...

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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

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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

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FIT 100 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 9:30 am – 10:20 am MGH 389

❖ Lab Sections

- ❑ Memorize your section ID!
 - ❑ Attend the same section always
- | | | | |
|------------|-------|--------------|---------|
| Section AA | W, F | 12:30 – 1:20 | MGH 030 |
| Section AB | W, F | 1:30 – 2:20 | MGH 030 |
| Section AC | T, TH | 8:30 – 9:20 | MGH 030 |
| Section AD | T, TH | 9:30 – 10:20 | MGH 030 |
| Section AE | T, TH | 1:30 – 2:20 | MGH 030 |
| Section AF | T, TH | 2:30 – 3:20 | MGH 030 |

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FIT 100 Course Work

- ❖ Lab-related assignments
- ❖ 3 Projects (2 parts each)
- ❖ Two midterm exams
- ❖ Mini-Quizzes
 - ❑ Short, unannounced, covering current reading (includes lab reading) and assignments
 - ❑ Participation and class service
- ❖ Comprehensive Final Exam
 - ❑ Wednesday, June 12th, 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.

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FIT 100 Homework Policy

- ❖ May be a combination of electronic and paper submissions
 - ❑ Each project or 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.

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FIT 100 Expectations

- ❖ What are your responsibilities as a student in FIT100?

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

- ❖ What are the TA responsibilities?

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FIT 100 Class Communication

- ❖ Course web site:
<http://courses.washington.edu/gbw/fit100sp02>
- ❖ Communicating with Instructors, TAs and classmates...
 - ❑ Bulletin Board
 - ❑ Official Announcements: 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
 - ❑ Posted on the web

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FIT 100 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.
- ❖ FIT100 staff will be alert for and will prosecute cases of inappropriate collaboration

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FIT 100 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 and brought precision to their thinking

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FIT 100 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) is offered every quarter

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FIT 100 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 Odegaard Library:
 - ❑ "HTML for the World Wide Web" by E. Castro
 - ❑ "Computer Programming Fundamentals with Applications in VB 6.0" by M. Kerman
- ❖ We will supply eReserve material and the addresses of Web sites containing supplementary source material
- ❖ We may require reading of handouts or web pages
- ❖ You will need some diskettes and a lab notebook

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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...

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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

Sandia recently partnered with Compac to create a computer to handle 100 trillion computations per second

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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?

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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?

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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

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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

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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

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Homework!!!!

- ❖ Reading for Wednesday
 - ❑ The syllabus
 - ❑ Course packet chapters – which ones? Find out on the Web
- ❖ Project 0
 - ❑ Find it... you know where
- ❖ If you don't have a UW computer account
 - ❑ Visit Computing and Communications in MGH or go to their website: www.washington.edu/computing and obtain one

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