

CRA Conference - Snowbird 2004

Implementing the Fluency Report

Montclair State University

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Slides at [..~deremer/FITnessMSU.pdf](http://www.csam.montclair.edu/~deremer/FITnessMSU.pdf)

Road Map for Talk



1. Understand about Montclair State
2. Appreciate General Education standards in computing
3. Learn about the integration of Fluency with IT and General Ed computing
4. See progress and problems with the FITness content and pedagogy
5. Consider future directions

1. About MSU

- NJ's 2nd largest and fastest growing institution
- > 11K undergrads, > 3.8K grads, growing to 18K by 2008
- ~ 9K full- & ~2.3K part-time undergrads
- Most are commuters
- Most work
- ~1250 transfer undergrads each year
- Diverse in ethnicity, country of origin, work experience, age
- ~50 undergraduate major programs
- All undergraduates take Gen Ed program including computing

Computer Science at MSU MONTCLAIR STATE UNIVERSITY

- 14 PhD faculty from 10 Δ countries of origin - 4 under 32 yrs old with research in biocomputing, hyperspectral image processing, bioinformatics, data mining; others in parallel and image processing, medical diagnosis systems
- Faculty graduate degrees in CS, EE, Math, ME, Physics, Stat
- ABET CAC degree; MS in CS; working on doctorate in CS speciality

Computer Science at MSU MONTCLAIR STATE UNIVERSITY

Philosophy - Model "Crossing the Chasm"

Strong CS with research in science hires

Encourage all in cross disciplinarity: urban planning, molecular docking, spiral wave modeling, minor in Cognitive Science

BS in Science Informatics with multiple tracks

18 hours in Bio/MoleBio, CS, Chem/BioChem, 10 hours in Math, 17 hours in one track's courses, and 16 hours in interdisciplinary in

Science Informatics

2. General Education Programs

- **1983** - CS offers 4 Δ Gen Ed computer science courses for virtually all students
- **1998** - CS Dept successfully argues to include computing in new Gen Ed Program
 - Computing's critical thinking, analysis, and problem solving are essential for 21st century graduates
 - Computing is more than the MS Word!

2. General Education Programs

- 1999 - University Gen Ed committee establishes rigorous standards for courses
 - Mandates formal responses to 11 specific questions and approval of responses by University Gen Ed committee [non trivial activities].

In what specific ways

- does the course help students develop & use critical thinking and problem solving abilities?
- do students use substantive, formal, edited writing (min 2k words) to explore, construct, and synthesize knowledge?
- does the course develop ethical issues awareness in students? ..

FITness & Gen Ed Computing



Larry Snyder
& ACM's
SIGCSE 2000

- *Being Fluent with INFORMATION TECHNOLOGY*, a report motivated by NSF, CSTB of NRC - What is necessary to live in a technological world.
- *An Epiphany!!*
Use the FITness report as validation for our own thoughts about Gen Ed computing and model our new course after it.

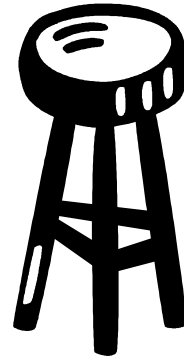
MSU FITness Workshop

Larry Snyder - Jan '01

- 9 CS and 1 adjunct faculty members become more enthusiastic
- Some important ideas learned
 - Use projects
 - Some programming is important
 - Students will benefit from this approach
 - Many fresh ideas about how to teach our cmpt109
 - Our ideas about Gen Ed computing are validated..

Fluency with Information Technology (FITness)

Contemporary Skills -
using current hardware
and software in
information processing



Intellectual Capabilities -
applying IT in complex and
sustained situations and
understanding the application's
consequences

Fundamental Concepts -
understanding the foundations
on which IT is built

CMPT109 Intro to Computer Applications: Fluency with IT



- 3 credit course satisfying the University Gen Ed computing requirement
- Taught by CS faculty, CS GAs, and CS adjuncts
- Department generated **template project** to exercise the tripartite of FITness
- Current template project emphasis on data collection through database using Internet searching, word processing, spreadsheets, and presentation software, e.g. HTML and ppt

CMPT109 Intro to Computer Applications: Fluency with IT



- Require Snyder *Fluency with IT*
- Some sections also using a literacy textbook *and/or* a Microsoft Office XP textbook
- **ComWeb** system focuses student lab learning
- **CS Consultancy** run by 5 CS GAs is available to help students outside of lab and class
- **Blackboard** environment exists for each section and used by many instructors

CMPT109 Intro to Computer Applications: Fluency with IT



- Course Format: two 75 minute blocks, one in a lab and one in a classroom either twice or once a week
- Goal: capabilities in project, concepts in class, skills in lab
- A **Blackboard** community, cmpt109 "hub", provides communication among instructors
- Currently 38 sections of 22-25 students each semester with ~ 12 sections in summer

Course Objectives

General Objective

- (1) enable students to use current office software products (word processor, spreadsheet, presentation software, database system) efficiently, and
- (2) enable students to understand fundamentals and concepts of computing, as well as current issues in computing and the impact of computing on society.

Specific Course Objectives

- Students will work with the following Microsoft products: Windows 2000, and in XP Word, Excel, Powerpoint, and Access and HTML
- Students will be able to
 - use their MSU email account to send and receives messages
 - navigate the World Wide Web (WWW) efficiently and perform successful Web-based research
 - evaluate and organize the results of WWW searches
 - present the results of a Web-based research in written form as well as through multimedia presentations

Project Template



- **Phases 1,2:** Select a topic of your choice that you can research using WWW and develop as a term project. Present a description and rationale for your topic.
- **Deliverables:** Submit a Word document presenting your topic to the Digital Drop Box
- **Phase 3:** Find 80 websites related to your topic. Organize and store the information in an Access database. Assess the information.
- **Deliverables:** Submit the Access database to the Digital Drop Box

Project Template



- **Phase 4:** Visit each Web site found in Phase 3. In your Access database, open each site (using the "Enter Search Result" button), and use the "Edit Site Information" button to open the Site Information form. In that form, fill out at least the *Title*, *Author*, *Copyright Date*, and *Bibliographic Code* fields.
- **Deliverables:** Submit the MS Access MDB file containing your data using Blackboard's Digital Drop Box.

Project Template



- **Phrase 5:** Write the term paper on your chosen topic. Use the database file you created in MS Access (your MS-Access-Generated References) as the source for your references by including it in the paper
- **Deliverables:** Submit the term paper in the given format to the Digital Drop Box
- **Phrase 6:** Prepare a short (6-10) Powerpoint slide presentation for your topic
- **Deliverables:** Submit the presentation to the Digital Drop Box.

Topics from Fluency with Information Technology



Selected Chapters from 24 of textbook:

Defining IT, HCI, Networking, HTML,
WWW, Data & Multimedia

Representation, Computer Operations,
Social Impact, DB, Privacy & Security,
JavaScript

Most sections of 17 chapters to most
sections of 10 chapters

4. Progress

- Students learn a lot more
- Faculty thinking more about the Gen Ed computing course
- More faculty discussion about the course and more interest in consistency across sections
- Suggestions for project changes and for sections of FITness book to use

4. Problems - Students



- Course too hard, too time consuming, more work than major courses
- Issues with taking a "similar" course over summer at other institutions
- Schedules make it hard to work with other students on the project
- Transfer students want credit for their previous computer literacy course

4. Problems - Instructors MONTCLAIR STATE UNIVERSITY

- Lack of sufficient support materials
- No course coordinator; hard to keep course hub current
- Inconsistencies across sections
- Course requires a big commitment in prep and grading times
- Adjuncts and some faculty and GAs have no "buy in"
- Creating an appropriate Challenge Exam

5. Future Directions MONTCLAIR STATE UNIVERSITY

- Increasing faculty commitment and developing consistency across sections
- Requiring every instructor to use MSU "brief" edition of FITness book
- Changing student attitudes
- Modifying project template
- Investigating new approach for the Challenge Exam for current & transfer students