LIS636-401 Foundations of Information Technology
Spring 2008 Time: M 6:00 – 8:30 PM. Room 357 Lucile Little Library
Instructor: Joseph Miller, Associate Professor (257-8854) jbmiller@uky.edu
Office: 343 LCLI. Hours M, T, R 2:00-4:00 PM, W 10:00 - 11:30 and by appointment.

Objectives of the course:

- To develop a conceptual and practical understanding of the computing fundamentals essential to information technology systems. Topics include how computers represent, process, store and retrieve information, present the user interface, run useful applications, and interact with other computers in a networked world.
- To understand the function and role of operating systems in the management of computer processes and data and how to effectively utilize them. HCI will be examined in the context of both graphical and command-based environments. Discussion will include computer file and directory structures, how computers physically store and retrieve files, and the configuration and security issues related to WINTEL and Unix systems.
- To develop a knowledge base regarding computer hardware and software sufficient to make informed selection decisions and perform basic troubleshooting.
- To develop an understanding of general programming processes and develop some basic script programming skills.
- To introduce database systems, their design and modeling techniques (ERD and DFD), and database normalization. Focus will be on relational database structures and the creation and use of a relational database.
- To introduce markup language concepts and graphics techniques needed to create simple HTML web pages and successfully upload them to a Unix based web server.
- To develop higher level competencies in some widely used productivity applications including Microsoft Word, Excel, PowerPoint, and Access.

Course Readings:
The recommended text is *Peter Norton's Introduction to Computers Sixth Edition*. (Note that this text is used primarily for foundation material. It does not reflect the full depth in which we will explore some of these topics). Students will be assigned readings from this as well as other recommended sources; all these other materials are on the web. Readings marked with an asterisk * should be considered assigned; others are optional supporting readings. We will assign readings and exercises on the University of Kentucky's web based training page at http://www.uky.edu/HR/HRD/Training/EVC/. The publisher of our text also has a great web site with many links, study guides, and self-directed quizzes; while the URL for this information is for the 5th edition, it is still very useful: http://www.glencoe.com/norton/norton5e/introduction/. Readings should be done prior to the class meeting. Students are held responsible for material in the course readings.

Blackboard
Although this is not an online class, I have a course shell that will be used for all class distributions as well as announcements. You will be automatically added to the

BlackBoard class list, but you must have an AD account to access the course (more on this below).

Computer Accounts
You must have the following UK computing accounts for this course: u-connect (for email and to authenticate yourself to the EVC training site), SWEB (for your student web pages and the Unix exercise), and a Windows Active Directory (AD) account for BlackBoard access. All these accounts are obtained by you from the User Account Management System (go to http://iweb.uky.edu/uams/ and follow the directions there).

Grading
The grade for this course will be based on the following:
2 exams, 100 pts each = 200 pts
5 projects worth a total of 140 pts
Total: 340 pts.

Grading Scale:
100-90% (306-340 pts) = A
89 -80% (272-305 pts) = B
79 -70% (238-271 pts) = C

PLEASE NOTE:
Assignments are due at the beginning of the class period; late assignments will have 10% deducted for every class period they are late. The instructor reserves the right to modify (i.e. reduce) the number of projects assigned or modify due dates (i.e. extend).

Exam Policy
It is the responsibility of every student to be present for exams. If a student misses an exam as a result of a documented illness or unforeseen emergency, the student will be given an opportunity to make up the test by appointment. If a student misses an exam for a non-medical or other non-excused reason, a makeup exam may not be allowed. Students wishing to schedule an alternate exam date for a non-medical reason must seek advance approval from the instructor at least two weeks prior to the scheduled exam to be considered.

Attendance Policy
Students are expected to attend class. While there is no participation component in the grading scale, note that *unexcused* absences that total up to one fifth of the contact hours for the course will result in a letter grade reduction. If unexcused absences exceed one third of the contact hours, an automatic grade of E will be assigned. Even if the absences are excused, if they total one fifth or more of the contact hours, the student may be required to petition for a late withdrawal. All absences, whether excused or unexcused, cannot be made up. Students are responsible for all material covered during any absence.

Plagiarism and Cheating
Plagiarism and cheating will not be tolerated. The University of Kentucky has established rules concerning these issues. You should have received a copy of this policy in your student handbook. Please note the penalties described for these violations.

Projects:
The projects are intended to be somewhat independent learning experiences and I encourage you to try to work ahead on these as you have time. However, we will discuss each project sometime in class before the due date.

Project #1: An introduction to the functions and use of operating systems and HCI. We will examine and compare command line environments and graphical systems (Windows). Tasks include navigating directory structures and basic file management commands. Use of the UAMS system will also be reviewed to ensure that all needed accounts have been created.
20 pts

Project #2: Create your class web page in HTML
Your class web page will be created and uploaded to the sweb server. This basic page will be updated periodically by adding links to completed future projects. 25 pts.

Project #3: Office applications: (45 points)

Part 1: Word processing - Create a multicolumn newsletter from a given text file.
Part 2: Excel - An Excel exercise in which a library budget will be prepared along with appropriate graphs and charts.
Part 3: PowerPoint – a short PowerPoint slide show will be created and made available on the web.

Project #4: An introduction to programming processes via text based command scripts. Batch files with replaceable parameters, simple Visual Basic, and PHP scripts will be created. 25 pts

Project #5 (25 points): Database systems. Part 1: Normalization theory. Part 2: Relational databases in Microsoft Access.

Schedule for LIS636

Week 1: 1/14

Module 1 Course introduction, data representation

Introduction to the microcomputer: The "Black Box"
Computing history and trends
Binary machines: binary numbers and Boolean logic
Data representation and data hierarchies (ASCII, etc.)
Overview of computer hardware systems: CPU cycles, RAM addressing, ROM, data bus, Input/output devices, Graphics and displays, Secondary storage concepts

Readings -

Norton: Section 1A, 5A

Appendix A on history of computing.

Week 2: 1/21 HOLIDAY – Martin Luther King

Week 3 and 4: Module 2 Introduction to operating systems

1/28, 2/4

Functions of operating systems
HCI via the command line and GUI
PC Boot up cycle
Command language syntax
Disk organization and directories; file and disk management commands
Navigating directory and file structures in a command environment
File names and extensions
Windows desktop and file management in Windows Explorer
Introduction to Unix, Win2000/XP
Multitasking, multithreading, and OLE
Device drivers and peripheral configuration, manual vs. plug and play
Configuring WINTEL systems and role of important configuration files (config.sys, system.ini, windows registry, etc.)
System interrupts and I/O addresses

Readings -

Norton: 7A, 7B

Online:

http://www.easydos.com/dosindex.html commands

*http://www.computerhope.com/msdos.htm (look at sections: About MSDOS, extensions, top ten commands).

Unix: http://www.engr.uky.edu/unixhelp/index.html

Week 5 - Module 3 Internet and the web

2/11 **Project 1 due**

Markup languages and HTML
Unix and uploading files

Readings:

Norton: 2A, 2B, 10A

*http://www.users.csbsju.edu/~jgramke/Help/unix/unix/data/chmod.html
http://www.users.csbsju.edu/~jgramke/Help/Web/permissions.html

HTML Readings:

W3schools site: http://www.w3schools.com
*http://www.w3.org/TR/REC-html40-971218/intro/intro.html
*http://www.mcli.dist.maricopa.edu/tut/

Week 6 –Module 4 Computer hardware systems
2/18 CPU cycles, RAM addressing, ROM, data bus.
Input/output devices
Graphics and displays
Secondary storage concepts

Readings -
Norton: 1B, 5B, 4A, 6A
* http://webopedia.internet.com/TERM/M/microprocessor.html

Week 7- Module 5 Productivity software
2/25 **Project 2 due**
Word 2000/XP
Excel
Review
Readings:
Norton: 8A, 8B

Week 8 –3/3 Midterm
Productivity software continued

Week 9 Spring Break 3/10-3/15

Week 10
3/17 Exam discussion
Module 6: Programming and scripting

Week 11 Module 6 continued
3/24 **Project 3 due**
Programming processes, Software types and trends: compiled, interpreted, object oriented.
Introduction to text based scripted command files.
Batch files, replaceable parameters, flow of control; bat files as NT login scripts
PHP and JavaScript examples

Readings-
Norton 13A and 13B
Online readings:
*http://www.computerhope.com/batch.htm (section on batch files)
*http://www.robvanderwoude.com/ (section on batch files)
*http://www.w3schools.com/js/js_intro.asp (introduction to JavaScript)

Week 12: - Module 7 Database Management Systems and Relational databases
3/31 DBMS defined
Systems analysis: Entity Relationship Modeling and DFD
Microsoft Access

Online Readings:
*http://www.smartdraw.com/resources/centers/software/erd.htm ER models
http://www.umsl.edu/~sauter/analysis/er/er_intro.html
*http://www.agilemodeling.com/artifacts/dataFlowDiagram.htm Dataflow diagrams
*http://www.oreilly.com/catalog/accessdata2/chapter/ch04.html Normalization
Extra and supplemental:
http://databases.about.com/library/weekly/aa080501a.htm
http://www.sqlmag.com/Articles/Index.cfm?ArticleID=4887&pg=1
http://www.databasejournal.com/sqletc/article.php/26861_1428511_4

Readings -
Norton 11A, 11B, 12A, 12B

Week 13 - Module 7 continued
4/7 **Project 4 due**
Query languages (SQL)
Normalization

Week 14 - Module 8 File systems
4/14 Secondary storage details: How files are physically stored; Physical formatting; allocation units, sectors and tracks; logical formatting; FAT, root directory and file retrieval

Readings –
Norton 6A, 6B

Supplemental Readings -
http://www.computerhope.com/jargon/n/ntfs.htm
http://www.computerhope.com/jargon/f/fat.htm
http://webopedia.internet.com/TERM/f/file_allocation_table_FAT.html

Week 15 Module 9 PC Security
4/21 **Project 5 due**
PC security, viruses, and networks
Readings:
Norton 14A and 14B

Final exam 4/28 6:00 PM

NCATE Statement: Integration with UK Educator Preparation Unit Themes
"This course supports the four themes of the conceptual framework for the UK professional education unit: ***research, reflection, learning,*** and ***leading***. The ultimate goal is to produce leaders who work together to improve service and learning among diverse populations in Kentucky and beyond."