#### NMETH 528

#### Computing Concepts: From Theory to Application

#### Mark Squire

#### Winter 2011 Course Description:

As a student in this course, you will embark on a comprehensive study of computing concepts from both a conceptual and an applied perspective. Our conceptual focus will include a global survey of computer operating systems, networking concepts and the Internet. You will also learn about information systems analysis and design, computer programming, as well as other desktop computing topics (e.g file management). In contrast, the applied focus will cover desktop system management skills and extend your ability to creatively use spreadsheet software to support personal productivity.

#### Course Objectives:

Students completing this course will be able to:

1. Compare and contrast telecommunication devices and applications using a systems perspective
2. Explain basic concepts of desktop system management and appropriately use desktop system utilities
3. Creatively use advanced personal productivity application functionality
4. Develop, implement and maintain a personal information management framework.
5. Write / Debug / Execute simple object oriented programs using an application development environment

**Course Requirements:**

In this course advanced literacy skills are assumed. Consequently, all students should be comfortable with the Windows operating system. These skills can be self-taught or acquired through formal course work.

#### Required Materials:

The course uses two textbooks and Microsoft Office Excel. Although the textbook is geared towards Excel 2007, Excel 2010 can also be used. Let me know if you have any compatibly issues and we can work those out.

The course will use:

* Two textbooks:
  + New Perspectives on Computer Concepts 2010: Comprehensive  
    ISBN: 0-324-78084-2.

Please be certain to purchase the "Comprehensive" version of this text. Other versions (e.g. Brief, Introductory) do not contain all the chapters we will use for this course.

* + Excel 2007 for Medical Professionals  
    ISBN:1-4239-9935-5
* The Microsoft Program "EXCEL 2007". EXCEL is available to students during the course without charge. If you do not currently own a copy of this program contact the instructor ([msquire@uw.edu](mailto:msquire@uw.edu))

**How the course is organized**

**Global overview:** The course uses two text books:

*Computer Concepts 2010*

Broadly based survey of technology as it applies to our personal and professional lives.

*EXCEL 2007*

Practical / Extensive training in the use of Spreadsheets to develop solutions for common challenges in health care environment.

*Additional Readings and discussion*

In addition to the two texts, each week we will discuss additional short reading assignments via the discussion board.

**Teaching methods and approaches:**

* *Reading (Comprehension) quizzes* will be used to assess student's comprehension of "Computer Concepts" materials – Students can take these several times so that you have a chance to improve your score but you must wait at least 30 minutes between attempts. Tests are automatically administered and graded by Moodle (see chapter specific links in the course website)
* *Chapter Completion Exercises* (CCE): Using a quiz format we pose questions that are designed to test your knowledge of the assigned "Computer Concepts" chapter by asking you to use the concepts in an applied context.  
  *EXCEL tutorials* -- the book emphasizes an applied, "hands on" approach. The results of your work with the text will be collected each week and evaluated for completeness.
* *Backup and Recovery project* -- Students will design and implement a backup and recovery plan for their computer.
* *Class discussion* -- We will use the class discussion board as our virtual classroom. We will use it to discuss our weekly readings.

**Grading**

Your grade will be determined by your work in the following areas:

|  |  |
| --- | --- |
| Assignments | Component Weight (%)  (Assessment Details) |
| Computing Concepts 2010 Comprehension Quizzes | 20 (details below) |
| EXCEL text Tutorials | 30 (details below) |
| Chapter Completion Exercises (CC2010 CCE) | 20  (details below) |
| Backup / Restore Project | 20  (details below) |
| Class discussion | 10 |

**Computing Concepts Grading**

The primary assessment method for the *Computing Concepts* assignments will be online multiple choice quizzes. These tests consist of 10 multiple-choice, true/false, and fill-in-the-blank questions. The questions are selected at random from a large test bank, so each time you take a test, you will receive a different set of questions. Your tests are scored immediately.

As indicated in the course website, each chapter has a "cut-off" date/time. The cut-off date is the last day on which test results for that chapter will be counted towards your grade.

A numeric grade will be assigned for each of the assigned chapters. Your highest score on the chapter quiz will equate with a numeric grade according to the table below:

|  |  |
| --- | --- |
| **Score (%)** | **Grade** |
| 90 - 100 | 4.0 |
| 80 | 3.5 |
| 70 | 3.0 |
| 60 | 2.5 |
| 10-50 | 2.0 |

I anticipate that your early attempts will result in scores that are not as high as you would like. Since the test items are constantly changing it will be possible for you to take this test five times.

**Excel Text Tutorial Grading**

The publishers of this text have provided "Data Files" that you load into your computer. As you work through the tutorials you change these files.

Your task is to work through the hands-on tutorial and then submit a completed case study using the online submission process. Your work on the homework creates a file that you will submit for grading. Each week you will find directions for the specific file(s) or screen shot you should submit to demonstrate completion of that unit.

The tutorials are due on Mondays before 5 PM (see the Schedule for the specific dates). *Please consider posting your work the day prior to the deadline in order to ensure your work is submitted on-time.* Regardless of how far you are in the Tutorial, submit the file to earn at least 25% of the grade for that assignment. If you do not submit a solution file by the due date / time your score for the tutorial will be 0.0.

Your "solution file" will be reviewed to determine if you successfully completed the required work. A total of 10 characteristics of a complete solution have been identified for each assignment. Therefore, each of the EXCEL solution files you submit will receive a score that ranges from 0 to 10. The average of these scores will be used to assign your final grade for the Excel Tutorials.

Here is an overview of the relationship between average score and assigned grade for this component:

|  |  |
| --- | --- |
| Average Score | Grade |
| 0 | 2.0 |
| 2 | 2.4 |
| 4 | 2.8 |
| 6 | 3.2 |
| 8 | 3.6 |
| 10 | 4.0 |

**Chapter Completion Exercises**  
  
The questions in the "Chapter Completion Exercises" are designed to test your knowledge of the assigned chapters (CC 2010 text) by asking you to use the concepts in an applied context.  
  
Here are some other details

* These "tests" are Open book.
* You can start them at anytime during the assigned week and work on them as much as you wish -- you can start on Tuesday, skip Wednesday, return to them on Thursday, etc.
* **But -- In this part of the course, you do not get to "take the test repeatedly". So, don't "submit" your answers until you have really finished all of the items.**
* To receive credit for "Chapter Completion Exercises" you must submit your answers before the closing date.

Assessment:  
Each week we will review your work and record your score (0 - 100 % correct) to the grade book. The average weekly score will be translated into a grade for this part of the course using the following equation:

CCE Grade = 2.5 + 0.0375 ( AvgScore - 60).

Here are some examples that show the relationship between your average chapter score and the grade that will be assigned for the "Chapter Completion Exercises" portion of this class.

|  |  |  |  |
| --- | --- | --- | --- |
| Avg. Score | | Grade | |
| <= 60 | | 2.5 | |
| 70 | | 2.9 | |
| 80 | | 3.3 | |
| 90 | | 3.6 | |
| 100 | | 4.0 | |

**Backup / Restore Assignment**

This assignment is due by 5pm at the end of Week 3

*General Background*

Section E of Chapter 4 (page 222) in the Computing Concepts text starts with the following sentences:

"Computer experts universally recommend that you make backups of your data. It sounds pretty basic, right? Unfortunately, this advice tells you what to do, not how to do it."

This section then goes on to discuss equipment, software, frequency, content selection, and storage. Then, on page 236 of the BookOnCD you will find an interactive Lab that teaches more about this topic.

Still, even after you have completed the reading and the lab, you will not have any personal hands-on experience with:

* Designing a backup / restore process
* Implementing this process
* Practice both the backup and restore segments

This assignment is designed to provide you with that challenge and experience.

*Specific Background*

If you have had a disk failure -- you don't need to be urged. For those who have not -- trust me -- it is not IF but WHEN. In this course segment I am asking you to consider what would happen to your professional and personal life if the primary data storage device you currently use where to fail.

The pictures from last year's summer fling. How about correspondence that could be important in some legal wrangle. How about the course paper that you've almost finished.

*The Assignment*

Design, implement, document, and test a "Backup and Restore" procedure for the data and files you currently store on the computer you use for this class.

Your solution should (at a minimum) discuss and solve the following Backup and Recovery issues:

ANALYSIS

* Overview (10) -- Discuss the organization of your data and files. What folder organization have you implemented and what part of that structure should be routinely protected from disk failure. If necessary, describe changes you have implemented in the folder structure so that your Backup Procedure only saves the data / files that cannot be obtained elsewhere (e.g. don't backup your programs because they can be reloaded from existing DVD's).

BACKUP

* When (5) -- What is the timing for your backup procedure?   
  What triggers this procedure?
* How (30) -- What are the methods you will use? This is the section in which you will describe the backup procedure you have designed. What method(s) are you using? If a program is involved -- give me its name and explain *exactly* how you are using it. In addition, provide a complete description of the files and folders your procedure will create and the file / folder naming conventions you will use to maintain an orderly work environment.
* Where (5) -- What storage device(s) will you use for the backup file(s)? How does this choice protect you from a loss of data?

RESTORE

* How (35) -- provide documentation of the process you will follow to recover the previous status of a specific file. Assume for example that your version of a class paper gets corrupted. How will you restore a previous version of this file without interfering with the current versions of other files.   
    
  Your documentation of this process must convince me that your system could be used by someone who is not a computer expert. It should include detailed "step by step" instructions and screen-shots to show the user what to expect. Could an unsophisticated user take your documentation and successfully restore an uncorrupted version of a file?

IMPLEMENTATION AND TESTING

* How (15) -- describe the tests you conducted to verify that you have designed and implemented a Backup / Restore procedure that works.

*How will a grade be assigned*

A total of 100 points will be allocated as indicated above. My primary concern is "Will this procedure work". Attention to the details of "what could go wrong" is also a key concern. Convince me that you have thought of everything.

*Some final comments*

The Lab teaches you how to use the Backup utility provided by Windows. Your solution does not have to use this utility. Perhaps you have already purchased a utility that you prefer or you choose to use another program (e.g. My Computer or WinZIP). You are free to make any choices you wish. My only expectation is that your method(s):

* work,
* are essentially "bullet proof" and
* relatively easy to use.

**WEEKLY SCHEDULE**

**Week 1**

**Orientation:**

* Review Introductory Powerpoint presentation
* Purchase both textbooks
* Review the introductory material covering course:

Inform yourself of each text's organization / features & practice several methods of submitting your work

**Computing Concepts 2010 (CC2010)**

* Explore text features

**Excel 2007**

* Explore text features
* Download required files to your computer
* Open the file "CollectBasicData.xlsx", add  
  the requested information, and save it by substituting your first name into the following file naming convention   
  <yourfirstname>CollectBasicData.xlsx
* Upload your file to the course web-site

Start the "Backup and Restore" project  
  
**Week One Readings:**  
  
**Anti-virus: a must?**  
<http://www.security-faqs.com/why-do-i-need-antivirus-software-anyway.html>  
  
**Yeah, but I have a Mac:**  
<http://antivirus.about.com/od/macintoshresource/tp/macvirusfaqs.htm>

If you don't have current, auto-updating, anti-virus software on your computer, please get it NOW. Anti-virus software is free to all UW Staff, Faculty and Students, and is available here: <https://www.washington.edu/uware/sophos/>

**OPTIONAL:**  
We only have so much time for things in class, but I would STRONGLY recommend you also make sure you have a firewall running. Mac OS X and Windows both have them built in.  
  
[What is a firewall?](http://en.wikipedia.org/wiki/Firewall_%28computing%29)  
[Mac firewall instructions](http://docs.info.apple.com/article.html?path=mac/10.4/en/mh1042.html)  
[Windows XP firewall instructions](http://technet.microsoft.com/en-us/library/cc875811.aspx)  
[Windows Vista firewall instructions](http://windows.microsoft.com/en-US/windows-vista/Turn-Windows-Firewall-on-or-off)  
[Windows 7 firewall instructions](http://windows.microsoft.com/en-US/windows7/products/features/windows-firewall)

**Week 2**

**Week Two Reading**

**Let me Google that for you:** How you can solve many problems faster than your IT department can:

* F1: On Windows computers, F1 is universally reserved for the help feature of programs. The quality of the help provided varies from program to program, but it's always a good place to start.
* Google: Odds are great that someone else has had the exact same problem as you, and has solved it: <http://www.associatedcontent.com/article/1711413/use_google_to_solve_computer_error.html?cat=15>
* What computer people really do? <http://xkcd.com/627/>

**OPTIONAL (Learn about Boolean Logic and searches)**

<http://websearch.about.com/od/internetresearch/a/boolean.htm>

<http://www.lib.berkeley.edu/TeachingLib/Guides/Internet/Boolean.pdf>

**CC 2010**

* Read Chapter 3 --
* Take Chap 3 quiz and complete Chap 3 CCE

**Excel 2007**

* Listen to Introductory Comments
* Work through Unit A (Page "Excel1" to 17 )
* Do the "Skills Review" (page 19 #2 - 8)
* Note: #3 is a thought challenge -- it does not impact the file you are preparing.
* Submit Skills Review file (Step 8e)" <yourfirstname>Weather Statistics.xlsx"

Work on the Backup and Restore project

Watch Excel Unit A Presentation

**Week 3**

**Week Three Reading**

It's not you, it's me: Why are computers sometimes so hard to use? You might be the victim of bad design.

**Required:**  
Design of Everyday Things, by Donald A. Norman, Chapter 1 (originally published in 1988, updated in 2002)  
  
I can't say enough about this book. It's generally considered Design 101 in the IT world, and it's very readable. There are so many copies of it in the world, used copies start at a penny on amazon. If you're ever going to design anything, or if you want to just realize how badly so many things are designed that you use every day, pick up a copy of this book.  
  
**Optional:**Norman, Chapter 3  
  
The other heavy hitters in design are Norman's partner, [Jakob Nielsen](http://www.useit.com/) and [Edward Tufte.](http://www.edwardtufte.com/tufte/index) If you ever go any further into the design world than this week's readings, you'll definitely encounter their ideas as well.   
  
Check out <http://annoyances.org/>. This is a site specifically designed to help people overcome some of the more annoying aspects of Windows. Mac users take heart -- I'm not aware that people have become so frustrated with the Mac OS that they've formed an entire online community to help deal with it.   
  
**CC2010**

* Read Chapter 4 --
* Take Chap 4 quiz and complete Chap 4 CCE

**Excel 2007**

* Listen to Introductory Comments (Guest Lecture: Clark Johnson)
* Work through Unit B
* Do the "Skills Review" (page 44 #1 - 8)
* Submit Skills Review file (Step 8e)  
  "<yourfirstname>Medical Supply Company Inventory.xlsx"  
  Note: Step 5 is a thought challenge -- it does not impact the solution file you submit
* When you've finished Unit B
  + Watch this presentation. In it we discuss the way in which absolute and relative cell references work when you propagate formulas across rows and columns. (Guest Lecture: Clark Johnson)

Complete the "Backup and Restore" project

**Week 4**

**Reading Assignment:**  
  
The next two weeks are theoretical. Norman told us about bad design. One of the reason designs fail is because they don't take into account how people are doing things now. Not everybody wants something NEW, but just about everybody wants something BETTER. I feel that design is best when it doesn't reinvent the wheel, but rather adds chrome hubcaps and Positraction.   
  
Without further ado, let's take a look at how the literature says YOU look for information: [Information-seeking behavior of nursing students and clinical nurses: implications for health sciences librarians](https://moodle.washington.edu/mod/resource/view.php?id=59349)  
  
  
**CC2010**

* Read Chapter 5 --
* Take Chap 5 quiz and complete Chap 5 CCE

**Excel 2007**

* Listen to Introductory Comments
* Work through Unit C --
* Submit Skills Review file (Step 9d)  
  "<yourfirstname>Health Insurance Premiums.xlsx"
* [[https://moodle.washington.edu/pix/f/pdf.gif](https://moodle.washington.edu/mod/resource/view.php?id=59349)Information-seeking behavior of nursing students and clinical nurses: implications for health sciences librarians\*Cheryl Dee, et al](https://moodle.washington.edu/mod/resource/view.php?id=59349)

**Week 5**

**Reading Assignment: How do people look for information?  
  
\*\*\*IMPORTANT\*\*\***This is a class that is supposed to cover both theory and practice.This week, we're looking at a model that tries to explain how people look for information. Obviously in computing, HOW people look needs to influence what you build for them. This article is the densest bit we're going to encounter this quarter, and you are not the target audience.  
  
Because of that, I want you to focus JUST on the model presented itself. I've recorded an intro to it (11 minutes) here, If I were you, I'd flip to where the model is presented in the article (p. 340), take a look at in, and then listen to the presentation. THEN, I'd tackle the article.  
[Johnson, JD, et al.A model for understanding and affecting cancer genetics information seeking. Library & Information Science Research. Volume 23, Issue 4, Winter 2001, Pages 335-349.](https://moodle.washington.edu/file.php/23618/sdarticle.pdf)  
 **CC2010**

* Read Chapter 6 --
* Take Chap 6 quiz and complete Chap 6 CCE

**Excel 2007**

* Listen to Introductory Comments (Guest lecture: Clark Johnson)
* Work through Unit D --
* Submit Skills Review file (Save your work after step 8f)  
  "<yourfirstname>Departmental Software Usage.xlsx"
* Notes for the Skills Review assignment:
  + Steps 1b,c &d are thought items   
    -- you do not have to write anything
  + Pay special attention to the chart layout steps (5a-j). These are important formatting skills
  + But feel free to ignore step 5k   
    -- in my opinion the shadow feature is really just fluff that does not add much
  + Step 6b confused me   
    -- it is the color of the bar that you are being asked to change for a specific data series
  + Step 6c -- ignore this if you wish   
    -- if you want to try this then what they are looking for is to change both the top and bottom.
* [[https://moodle.washington.edu/mod/resource/icon.gif](https://moodle.washington.edu/mod/resource/view.php?id=59140)Johnson Model Resource](https://moodle.washington.edu/mod/resource/view.php?id=59140)

**Week 6**

**Weekly reading:** **How newer technologies are changing the way we work and play online**   
  
One of the really fun things about being in the IT business is that you not only get to, but HAVE to explore new technologies. You have to keep your organization current and moving forward, so you have to keep abreast of what's going on currently, and also actually try out these technologies ("No, I'm not playing Mafia Wars on Facebook -- I'm doing RESEARCH").  
  
Here's a pretty recent article that's sparked some discussion in IT around campus. It's called [The web is dead: long live the Internet!](http://www.wired.com/magazine/2010/08/ff_webrip/all/1) and it appeared in Wired magazine within the past year. I'm not sure the web is dead, but I do think it's being overtaken by other uses of the Internet (and if you're not entirely clear on the difference between the web and the Internet, you should be after reading this article).  
  
See ya in the forum!  
  
**CC2010**

* Read Chapter 7 --
* Take Chap 7 quiz and complete Chap 7 CCE

**Excel 2007** -- No assignment for this week  
But you can start on the next unit (e.g. E) now if you wish.

**Week 7**

Weekly readings:  
RSS and DB alerts  
  
**CC2010**

* Read Chapter 8 --
* Take Chap 8 quiz and complete Chap 8 CCE

**Excel 2007**

* Work through Unit E --
* Submit Skills Review file (Save your work after step 8f)  
  "<yourfirstname>Reviews.xlsx"

**Week 8**

**Weekly Reading:**Tacit Knowledge: The stuff we all know but don't know how  
  
**CC2010**

* Read Chapter 10 --
* Take Chap 10 quiz and complete Chap 10 CCE

**Excel 2007**

* Work through Unit F --
* Submit Skills Review file (Step 7a)  
  "<yourfirstname>Sports.mht"

**Week 9**

**Weekly Discussion:**  
No reading this week. You guys have been through a whirlwind of things computer-ish, and your heads must be spinning a little. This week, let's chat. Please post on one of three things:  
  
1) What's your favorite technology or aspect of technology right now?  
2) How is this class coming together in your head? What's your current view of computing?  
3) You've got an IT guy here, anything that hasn't been clear or hasn't been touched on? Now's the time to ask!  
  
Please give us feedback using the Course Evaluation form available here.  
  
**CC2010**

* Read Chapter 11 --
* Take Chap 11 quiz and complete Chap 11 CCE

**Excel 2007**

* Work through Unit G --
* Submit Skills Review file (Step 7d)  
  "<yourfirstname>Employees.xlsx"

**Week 10**

**Weekly 'Reading' Assignment:**

What is the future of computing?

Apple's guess (from 1988): [Knowledge Navigator](http://www.youtube.com/watch?v=hb4AzF6wEoc)   
Microsoft's guess (from 2010): [Microsoft's Future Vision 2019](http://www.youtube.com/watch?v=g9JBSEBu2q8)

Please give us feedback using the Course Evaluation survey available here.  
  
**CC2010**

* Read Chapter 12 --
* Take Chap 12 quiz and complete Chap 12 CCE

**Excel 2007**

* Work through Unit H –
* Submit Skills Review file (Step 7g)  
  "<yourfirstname>Salary Summary.xlxs"