**ITACS 5122 Final Exam Study Guide**

The Final Exam will be comprehensive. Anything covered in the PowerPoint Slides, Textbooks, In-Class Presentations, In-Class Activities and at home assignments are fair game for the Final Exam. The exam will contain a combination of true/false, multiple choice and short answer questions. I have provided some highlights below to help you study, but you should be comfortable with all of the material we covered in the course.

**Topics**

* MIS Careers and Intro to IT Architecture
  + Common Job Titles
    - Business Analyst vs Project Manager vs Application Developer etc.
      * What is the key
    - Interpreting a network diagram
      * Understand server types (DNS, File server, DB server etc…)
      * Components of the diagram from week to week
* Computing Systems
  + Building a PC
    - Hardware components that make up a PC (Hard drive, Memory, Processor etc.)
      * How do the parts interact with each other?
      * How do electricity, magnetism and binary interact with each other?
      * Common errors/issues from in-class Lab and associated solutions
* Operating Systems
  + Define purpose and scope of OS’s
  + CLI vs GUI
    - The various commands we ran in the activities (ipconfig, nslookup)
  + Performance factors (Processor Time, Disk read/write)
  + Services and Processes
  + How do OS’s bridge between virtual and physical? Be able to describe the process from end-to-end.
* Storage
  + RAID
  + Mirroring
  + How Hard drives function
  + Speed vs Capacity
  + Duality of Magnetism
  + Volatile vs Non-Volatile storage
* Networking
  + IP Address vs MAC Address
    - Be able to define each
  + WAN vs LAN
  + Private IP Addresses vs Public IP Addresses
  + How one node connects to another node
    - On the same LAN
    - On a separate LAN
  + NAT and RIP
* Systems Administration
  + DNS
  + DHCP
  + Domains
    - Active Directory
* Databases
  + Database Administration
    - Different brands of databases
    - Non-Volatile Relational Databases
    - Difference between a DBMS, database, database server
    - How do databases interact with applications?
  + Database Development
    - Purpose of SQL
    - Be able to write basic sql queries
      * Select, Insert, Delete, Update
      * Column aliases
      * Inner and Outer Joins
    - Interpret an ERD
      * Primary Keys, Foreign Keys, Relationships
      * Tables, Columns, Rows

* Application Software
  + Web Servers (IIS)
  + Visual Studio IDE
    - What is the purpose of Visual Studio
    - What is an IDE
  + Application Development
    - Form Design
      * Windows Forms vs Web Forms
    - C# Coding
      * Variables, Classes, Objects
      * Conditional Logic (If, Then, Else, Case)
      * Loops (For, While)
* Web Application Security
  + What makes Web Application Security different from other types of security?
  + Purpose of tools: Mozilla Firefox, Web Developer Toolbar, Tamper Data
  + SQL Injection
    - What is it and how does it work?
  + Identifying vulnerabilities in a website
    - Initial surveying of a website
    - Steps to take when first looking at a website