**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