# Final Theory Exam and SBA Study Guide

IN705 Networks 3

November 11, 2014

## Theory Exam Topic Outline

The theory exam will consist of short answer and multiple choice questions.

1. DNS
    - Be able to explain the distributed, hierarchical nature of DNS
    - Be able to explain how a DNS query is resolved, step-by-step
    - Know the different types of DNS resource records and their functions
    - Be able to read and interpret a DNS zone file
2. DHCP
    - Be able to explain the process by which a DHCP client receives a lease from a server
    - Know the common elements of a DHCP configuration
    - Be able te read and interpret ISC DHCP configuration
    - Know the purpose of a DHCP relay
3. Security
    - Be able to explain the basic function of a packet filtering firewall
    - Be able to explain what a stateful firewall rule does
    - Describe the purpose and function of an intrusion detection system
    - Be able to read and explain a pf firewall rule

# Skills Based Assessment Topics

For the SBA you may use notes, books, online references. You cannot, however, do anything that disrupts other students taking the SBA. You will be given the IP Addresses and login credintials for virtual servers. You will log onto those servers and carry out a set of network administration tasks. When you complete each task you will have me check and sign off on it.

## SBA Topics

You should be prepared to do tasks on the following topics.

1. DNS (BIND on OpenBSD)
    - Modify a zone file by adding or changing resource records
    - Modify `named.conf` to set up a new zone
    - Troubleshoot errors in a zone file
    - Use `dig` to get information about a zone.
2. DHCP (ISC DHCPD on OpenBSD)
    - Create or modify a network configuration in `dhcpd.conf`
    - Create a reservation to issue a fixed address to a machine
3. DHCP Server (Windows Server 2012)
    - Create a DHCP network configuration on Windows Server
4. pf Firewall on OpenBSD
    - Create or modify firewall rules
    - Inspect the currently active firewall rules
5. nmap
    - Perform a network scan and interpret the results.