

# CS 615 Systems Administration Course Outcomes

Each course outcome is followed in parentheses by the Program Outcome to which it relates.

**Concepts** - Explain the most common duties of a System Administrator, including, but not limited to, technical skillsets required and overlap with other disciplines. ()

**Filesystems 1** - Explain the general layout of the UNIX filesystem hierarchy, mount points and the most common mount options as well as elaborate on the properties stored in an inode, including when and how these are updated. ()

**Operating systems 1** - Have a general understanding of how virtualized hosts are bootstrapped and how shared resources in the cloud are accessed. ()

**Ethics** - Analyze problematic situations arising in a multiuser environment with full understanding of the professional responsibility and impact of a System Administrator's unique position. ()

**Scripting** - Write a multi-platform tool to address a well-defined problem with consideration for hidden requirements and scalability. ()

**Analysis** - Analyze network traffic by inspection of the actual packets through the use of "tcpdump". ()

**Networking 1** - Give practical examples for each of the layers in the TCP/IP stack model, including what tools to use to debug problems on each layer. ()

**Networking 2** - Given an address and netmask, identify its network and host portions, the number of possible hosts on its subnet and explain how and when the broadcast address would be used. ()

**DNS** - Explain in detail the various DNS related queries between a host, a resolver, an authoritative DNS server and the root servers. ()

**SMTP** - Trace an email across two MTAs based on the email headers and explain the related DNS queries. ()

**Security 1** - Distinguish between privilege-escalation (remote and local) and denial-of-service attacks. ()

**Security 2** - Explain the areas in which cryptography provides security as well as give examples of how each can be subverted. ()