

# UNI CS 4400, Section 1 (Spring 2024)

## System Administration

### Course Syllabus

Meeting Times: MWF 2pm-2:50pm in 112 WRT

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#### Contact Information

Instructor

Sarah Diesburg (sarah.diesburg@uni.edu)  
Office: 39 EBAR (East Bartlett inside of Suite 19)  
Office hours: See eLearning  
Class website: See eLearning

#### Course Description

Major concepts and mechanisms associated with computer system administration. Focus on issues surrounding user management, the configuration of services, and the coordination of distributed resources. Prerequisite(s): CS 3470; junior standing.

#### Course Learning Outcomes

- Understand general terms and tools to perform system administration duties.
- Demonstrate successful setup and administration of a variety of servers/workstations and services necessary to administrate a modern network environment.
- Demonstrate competency in providing satisfactory documentation of both the setup of the servers/workstations and services (mentioned above) and overall network infrastructure.

#### Course Material

Unix and Linux System Administration Handbook, Fifth Edition (ULSH) – ISBN 978-0-13-427755-4

(There is no good high-level comprehensive Windows system administration handbook I could find, so we will be using linked resources on the Internet throughout the semester.)

#### Course Environment

Computer Science Teaching Cluster (vSphere) plus VPN access for off-campus.

#### Assessments

The grade you earn in this course will be calculated from the number of hands-on system administration activities and documentation that you complete satisfactorily plus the final deliverable.

1. The hands-on system administration activities are meant to provide you with both a depth and breadth of experiences with respect to system administration. All activities are smaller parts of a larger scenario that you will be completing throughout the semester. Unless otherwise noted, all activities are to be completed and demoed *individually*. However, you are encouraged to having *debugging buddies* (more on this discussed in class).

All activities will be graded on a combination of correctness and documentation.

2. All hands-on system administration activities must have documentation, which should include correct terminology and concepts informed by the readings. The documentation needs to detail, at minimum:
  - a. The steps you took to set up the service (including packages installed, configurations modified, and any service-specific knowledge such as usernames/passwords).
  - b. An updated main network diagram showing the addition of the service running, as well as any relevant IP addresses, domain names, etc.

If the documentation is not good enough, I will not pass the activity until it is brought up to a satisfactory level.

3. The final deliverable will be a single document containing:
  - a. A full overview of your network, computers, and services running
  - b. Your class documentation involving installation and configuration of all services
  - c. A 1-page minimum appendix discussing the three most important skills you think you learned in this course along with suggestions for anything that could be done in the future to improve the course.
  - d. A table of contents tying the three above components together with working hyperlinks

The purpose of the final is for you to create your own system administration handbook that you can use in the future. Putting time and care into this will make your future self happy if you go on to administrating systems in the future.

## Grading

Your final grade in the course will be determined by the number of hands-on projects with documentation that you complete successfully, as well as turning in the final deliverable.

## Activities

- For a **D**, you must satisfactorily complete 4 activities plus the final deliverable.
- For a **C**, you must satisfactorily complete 6 activities plus the final deliverable.
- For a **B**, you must satisfactorily complete 8 activities plus the final deliverable.
- For an **A**, you must satisfactorily complete 10 activities plus the final deliverable.

These activities contain 3 mandatory getting-started activities: (1) getting familiar with Linux servers, (2) getting familiar with Windows servers, (3) designing and implementing a base network with a firewall and dhcp server. All other activities are of your choosing and must include a mix of Windows and Linux systems.

If you complete one more activity than a particular grade level but do not reach the next level, a minus grade of the next level will be assigned. For instance, if you complete 9 activities, you will receive an A-. If you do not complete your final deliverable by its due date, your grade will be lowered by a letter (e.g. B to C).

***If completing a new activity breaks something in an older activity, you will not retain credit for the older activity until you fix the problem.*** For example, suppose you configure a webserver server for 1

activity credit. Later, you create a local DNS server for 1 activity credit, but it breaks the functionality of the webserver from inside your network. You will then only have 1 credit (for the DNS server) until you can fix the issue with the webserver. If you have any questions about this, please ask me.

## **Tentative Course Schedule**

Week 1-2	Getting Started with Linux and Windows Servers
Week 3	Designing the network for your scenario. This includes basic firewall and dhcp implementation.
Week 4-14	Implementing additional project activities.
Week 15 and Final	Creating your final documentation deliverable

## **Class Attendance**

Students benefit the most from this course when they attend classes in person. If I notice attendance dropping off (particularly during work days), I hold the right to instantiate an attendance policy that becomes tied to your final grade.

## **Expectations**

This course will challenge you. Doing well requires you to dedicate a significant amount of time completing projects, reviewing materials, and thinking critically about new information. A commonly-accepted guideline in higher education is that you should spend 2-3 hours outside of class for every hour inside of class. If you are unsure how to spend your time, please talk with me and I can suggest activities. If you are putting in the suggested amount of time and you are still not getting the outcomes you desire, please talk with me and we can tailor your studying approach to maximize your learning. If you require additional help, don't hesitate to ask! The responsibility for learning the material is yours and yours alone – I am only an additional resource available to help you with your learning!

It is important that we are all respectful of each other's viewpoints, knowledge levels, and abilities. We will have fun in this class, and we will always foster a safe and positive learning environment. You should feel free to ask any question or share any view that you wish. Your behavior should demonstrate to others that they are free to share any viewpoint they wish, as well.

As part of being respectful to other students, keep in mind that disruptive behavior is distracting and disrespectful to others. Please make sure your actions do not impede the learning of other students.

## **Incompletes**

Incompletes are awarded only in very rare instances when an unforeseeable event causes a student who has completed all the other coursework to date to be unable to complete a small portion of the work in the ***last week or two*** of the semester (typically the final project). Incompletes will not be awarded for foreseeable events including a heavy course load or a poorer-than-expected performance. Verifiable documentation must be provided for the incomplete to be granted, and arrangements for the incomplete should be made as soon as such an unforeseeable event is apparent.

## **Scholastic Conduct**

You are responsible for being familiar with UNI's Academic Ethics Policies (<http://www.uni.edu/pres/policies/301.shtml>). Remember, discussing assignments is good. Copying code or answers is not. Remember to cite any and all resources you use, including books, websites, and class materials. I want you to look things up, so I am expecting a lot of citations.

**Accessibility**

Please address any special needs or special accommodations with me at the beginning of the semester or as soon as you become aware of your needs. Those seeking accommodations based on disabilities should contact Student Accessibility Services (SAS). Please feel free to contact the SAS staff at [accessibilityservices@uni.edu](mailto:accessibilityservices@uni.edu) or at (319) 273-2677 (for deaf or hard of hearing, use Relay 711). SAS is located in ITTC 007.