SYLLABUS
Oakland University
School of Engineering and Computer Science
Department of Computer Science and Engineering
CSI3670
Advanced System Administration

COURSE INFORMATION

Course:	CSI3670 - Advanced System Administration
Day/Time:	TR 3:30pm - 5:17pm
Semester/Year:	Winter 2019
Class Location:	Engineering Center 279
Credits:	4
Webpage:	`http://moodle.oakland.edu`
Course Format:	Traditional

Professor:	Dr. Erik Fredericks
Email:	fredericks@oakland.edu
Phone:	(248) 370–4075
Office:	EC530
Office hours:	MW 1:00pm – 2:00pm or by appt.

TA:	Rui Ma
Email:	rma@oakland.edu
Office:	EC501
Office hours:	TBD

COURSE DESCRIPTION

Advanced concepts in enterprise computing infrastructure analysis, deployment, management and troubleshooting. Topics include enterprise computing resource requirements analysis and design, single sign-on management, application and server deployment, virtualization, security configurations, and performance analysis.

Prerequisite(s): CSI3660 and major standing in CS/IT.

LEARNING OUTCOMES

Following completion of this course, students should be able to perform the following:

- Capacity and resource planning
- Use shell scripting/programming to do system administration tasks
- Managing users, storage, hosts and connectivity in networked systems
- Configuring system, application and network services for Windows and Unix platforms
- Analyze and tune performance of application, web, directory and file servers
- Strategic security planning, intrusion detection and penetration testing
- System maintenance and performance tuning

GRADING

The final grade for this course is based on the following weights:

Participation (in-class assignments, class activities, Moodle quizzes)	10%
Homework / lab assignments	30%
Project	30%
Midterm exam	15%
Final exam	15%

Grading scale:	
90% – 110%:	3.6 – 4.0
80% – 89%:	3.0 - 3.5
70% – 79%:	2.6 - 2.9
60% – 69%:	2.0 - 2.5
0% – 59%:	0.0 - 1.9

Letter grading scale:	
A:	4.0
A-:	3.7 – 3.9
B+:	3.3 – 3.6
B:	3.0 – 3.2
B-:	2.7 – 2.9
C+:	2.3 – 2.6
C:	2.0 – 2.2
C-:	1.7 – 1.9
D+:	1.3 – 1.6
D:	1.0 – 1.2
F:	0.0 – 0.9

EXAMS

There will be **two exams** in this class: a midterm and a final. Each will be worth 15% of your final grade.

MIDTERM EXAM:	**March 5th, 2018, 3:30pm – 5:17pm, EC279**
FINAL EXAM:	**TBD**

PROJECT

There will be a term project for this course to demonstrate your knowledge of advanced server administration. For this project you will be on a team of 2-4 people, centered around an assigned task. You will most likely need to provide coordination between your team's servers to support tasks such as fault tolerance, virtualization, services needed to support your assignment, etc. You'll also need to provide documentation and presentation(s) along the way as well, similar to last semester.

TOPICS COVERED

This section highlights the key concepts we will be covering throughout the semester.

- **Enterprise computing**: directory services and supporting services required for managing an enterprise environment
- **Requirements analysis**: analysis and elicitation of requirements necessary for an enterprise environment
- **Single sign-on**: centralized authentication services for an enterprise environment
- **Application/server deployment**: centralized deployment of applications in an enterprise environment
- **Virtualization**: configuration and deployment of virtualized systems
- **Security configuration**: securing Windows and Linux servers against attack
- **Troubleshooting**: advanced topics in Windows and Linux server troubleshooting
- **Performance analysis**: advanced topics in performance analysis

ASSIGNMENTS

There will be approximately 6 lab/homework assignments that will be mostly tied into your final project and be used to ensure that you are making progress towards the final project deliverable. All homework assignments are to be turned in via Moodle (email/paper assignments will not be accepted unless otherwise specified). Points for each assignment will vary based on difficulty, but will average out to comprise 30% of your final grade.

CLASS POLICIES

- **Class attendance**: I will not be taking attendance, however it is up to you to keep up with course materials and homework. There will be in-class assignments sporadically assigned that will be due at the end of class and Moodle quizzes due

by the end of the day. These will increase in frequency if I notice class attendance dropping. If you miss an in-class assignment and had either an approved university absence, a medical emergency, or an extended absence due to work-related reasons, please contact me to make up the assignment.

- **Late policy**: This course covers a lot of material, and as such, submitting assignments late can seriously hinder your ability to keep up with the material. As such, late assignments will receive a 10% penalty for each day that it is late. All homework assignments are due by 11:59pm (EST) on the specified date and must be submitted to Moodle.
- **Cooperation and cheating**: You are welcome to discuss the homework assignments and projects with any other members of the class, myself, or the TA. However, do not copy answers from each other, as cheating is not tolerated. Any instances of cheating or plagiarism will be reported to the university and you will likely lose credit for the course. If you are found to be cheating or plagiarizing on an exam, you will receive a grade of 0 and will most likely fail the course. Please read the Academic Conduct Regulations for more information (`http://catalog.oakland.edu/content.php?catoid=14&navoid=700`).
- **Exams**: Exams are closed book and must be taken within the allotted class time. If you are unable to take an exam due to sickness, work requirements, or some other university-approved absence, contact me as soon as possible to schedule a makeup. Please note that you must provide appropriate evidence as to why you could not attend the scheduled exam.
- **Cell phone / devices**: This is a course specifically for learning about computing technology and I have no problem with you using your devices during class to take notes or work through examples. However, I do require that all devices be muted during class time. If you are disruptive I will ask you to turn off your device. Failing that, I will ask you to leave.
- **Distribution**: We will be using Ubuntu 17 and Windows Server 2012 throughout this course for assignments and the project. There will be a virtual machine created on the university server for each student, and you will be expected to administer and maintain the virtual machine appropriately. Login details regarding the virtual machine will be distributed in the first week of class. You are welcome to setup a virtual machine on your own personal device for testing, however keep in mind that all assignments must be completed on the university's virtual machine.
- **Moodle**: All course materials (lecture notes, homework assignments, etc.) will be posted to Moodle as they become available. Students are expected to check Moodle regularly for course updates. All homework assignments are to be submitted through Moodle by 11:59pm on the specified date.
- **Contact**: The best method to contact me is via email (fredericks@oakland.edu). I will do my best to get you an answer as soon as possible, as long as the email is sent at a reasonable hour.

ADDITIONAL POLICIES

1. **Academic conduct policy**: All members of the academic community at Oakland University are expected to practice and uphold standards of academic integrity and

honesty. Academic integrity means representing oneself and ones work honestly. Misrepresentation is cheating since it means students are claiming credit for ideas or work not actually theirs and are thereby seeking a grade that is not actually earned. Following are some examples of academic dishonesty:

(a) Cheating on examinations. This includes using materials such as books and/or notes when not authorized by the instructor, copying from someone elses paper, helping someone else copy work, substituting anothers work as ones own, theft of exam copies, or other forms of misconduct on exams.

(b) Plagiarizing the work of others. Plagiarism is using someone elses work or ideas without giving that person credit; by doing this students are, in effect, claiming credit for someone elses thinking. Whether students have read or heard the information used, they must document the source of information. When dealing with written sources, a clear distinction should be made between quotations (which reproduce information from the source word-for-word within quotation marks) and paraphrases (which digest the source of information and produce it in the students own words). Both direct quotations and paraphrases must be documented. Even if students rephrase, condense or select from another persons work, the ideas are still the other persons, and failure to give credit constitutes misrepresentation of the students actual work and plagiarism of anothers ideas. Buying a paper or using information from the World Wide Web or Internet without attribution and handing it in as ones own work is plagiarism.

(c) Cheating on lab reports by falsifying data or submitting data not based on the students own work.

(d) Falsifying records or providing misinformation regarding ones credentials.

(e) Unauthorized collaboration on computer assignments and unauthorized access to and use of computer programs, including modifying computer files created by others and representing that work as ones own

2. **Add/Drops**: The university policy will be explicitly followed. It is the students responsibility to be aware of deadline dates for dropping courses.

3. **Special Considerations**: Students with disabilities who may require special accommodations should make an appointment with campus Disability Support Services, 106 North Foundation Hall, phone 248 370-3266. Students should also bring their needs to the attention of the instructor as soon as possible by providing the Letter of Accommodations created by DSS. For academic help, such as study and reading skills, contact the Academic Skills/Tutoring Center, 103 North Foundation Hall, phone 248 370-4215.

4. **Excused Absence Policy**: This policy for university excused absences applies to participation as an athlete, manager or student trainer in NCAA intercollegiate competitions, or participation as a representative of Oakland University at academic events and artistic performances approved by the Provost or designee.
Students shall inform their instructors of dates they will miss class due to an excused absence prior to the date of that anticipated absence. For activities such as athletic competitions who schedules are known prior to the start of a term, students must provide their instructors during the first week of each term a written schedule showing days they expect to miss classes. For other university excused

absences students must provide each instructor at the earliest possible time the dates that they will miss.

5. **Make-up work (excused absence)**:
   - It is the responsibility of the student to request from the instructor an opportunity to complete missed assignments, activities, labs, examinations or other course requirements in a timely manner.
   - Students are responsible for all material covered in classes that they miss, even when their absences are excused, as defined above.
   - Missed classroom activities will be rescheduled at the discretion of the instructor.

PROGRAM OUTCOMES

Program outcomes are a set of skills that assure the achievement of the program educational objectives and are necessary for professional engineering practice. Before graduating, SECS students will demonstrate their skills in the following key areas:

1. Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
2. Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the programs discipline.
3. Communicate effectively in a variety of professional contexts.
4. Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
5. Function effectively as a member or leader of a team engaged in activities appropriate to the programs discipline.
6. Identify and analyze user needs and to take them into account in the selection, creation, integration, evaluation, and administration of computing-based systems.
7. An ability to use and apply current technical concepts and practices in the core information technologies of human computer interaction, information management, programming, networking, and web systems and technologies.
8. An ability to identify and analyze user needs and take them into account in the selection,creation, evaluation and administration of computer-based systems.
9. An ability to effectively integrate IT-based solutions into the user environment.
10. An understanding of best practices and standards and their application.
11. An ability to assist in the creation of an effective project plan.