

**MIDSTATE COLLEGE**  
**411 W. NORTHMOOR RD. PEORIA, IL 61614**  
**(309) 692-4092 (800) 251-4299**

**Fall 2018**

**Course:** CIS 361 Open Source Operating Systems

**Credit:** 4 Quarter Hours

**Method of Delivery:** On-campus Night (N)

**Course Description:** Students will explore the latest developments in open source operating systems technologies and learn about the most current topics in the rapidly changing fields of open source operating systems and networking. Important concepts covered include process management, memory management, file systems, I/O system management including device drivers, distributed systems, and multi-user concepts including protection and security. Process management discussions focus on threads, scheduling, and synchronization. Memory management topics include paging, segmentation, and virtual memory. Students will examine how these concepts are realized in several current open-source operating systems, including Linux. Course fees may apply.

**Prerequisite:** CIS 251 Introduction to DOS and Scripting

**Text(s) & Manual(s):** Security Strategies in Linux Platforms and Applications

**ISBN:** 9781284090659

**Author(s):** Michael Jang, Ric Messier

**Publisher:** J B Learning

**Materials needed for this course:**

Additional Supplies:

Hardware/Software and Equipment:

Virtual Security Cloud Lab Access, 2nd Ed. ISBN: 9781284141597

**Topics:**

- Open Source Operating Systems
- Troubleshooting, Performance, and Security
- Working with the BASH Shell
- Linux Installation and Usage
- Exploring Linux Filesystems

**Learning Objectives:** Upon completion of this course, the student will be able to:

1. Summarize the latest developments in open source operating systems technologies
2. Install Linux on a PC
3. Manage the Linux GUI Interface
4. Operate Linux Command Line Utilities
5. Execute Linux File Management/Administrative tasks

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6. Generate practical Linux Shell Scripts
7. Operate LINUX BASH shell & use common commands
8. Manage LINUX File Structure and Hierarchy
9. Manage LINUX security settings and user rights and permissions

**Midstate Grading scale:**

90 - 100	A
80 - 89	B
70 - 79	C
60 - 69	D
0 - 59	F

**Academic Integrity:**

Academic integrity is a basic principle of the College's function. Midstate College students are expected to maintain a high level of academic honesty. Contrary actions may result in penalties such as failure of the assignment(s), a lesser grade on assignment(s), failure of the course and/or suspension from the College. The course instructor will review all submitted documents and supporting evidence in connection to the infraction. The course instructor will also review the student's personal file for other notifications of academic dishonesty before determining the level of action to be applied. The course instructor will complete the Academic Dishonesty Report form to document and describe the incident and actions taken, then kept on file. The student may appeal the decision to administration, whose decision will be final.

The following (**plagiarism, cheating, deception, sabotage, computer misuse and copyright infringement**) are included in the actions Midstate College considers behavior contrary to the academic integrity policy; however, the policy is not limited to these examples. Further discussion of consequences regarding academic dishonesty are addressed in the Student Handbook.

**Plagiarism:**

Plagiarism is using another person's words, either by paraphrase or direct quotation, without giving credit to the author(s). Plagiarism can also consist of cutting and pasting material from electronic sources by submitting all or a portion of work for assignment credit. This includes papers, computer programs, music, sculptures, paintings, photographs, etc. authored by another person without explicitly citing the original source(s). These actions violate the trust

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and honesty expected in academic work. Plagiarism is strictly against the academic policy of Midstate College. Its seriousness requires a measured, forceful response which includes consequences for inappropriate and/or no citation.

In courses containing writing assignments, the College promotes the use of Turnitin which compares the student's writing against previously submitted papers, journals, periodicals, books, and web pages. Students and instructors can use this service to reduce the incidence of plagiarism. This electronic resource has been found to conform to legal requirements for fair use and student confidentiality. It is able to provide a report to the student indicating the parts of the assignment that match.

**Student Success and Tutoring:**

Contact Student Success: Room 110; (309) 692-4092, ext. 1100; [studentsuccess@midstate.edu](mailto:studentsuccess@midstate.edu);

The Office of Student Success offers help in the following areas:

- Tutoring: Tutoring is encouraged for students who are doing their best to complete assignments yet still are experiencing difficulty in this course. Tutoring may be provided by the instructor outside of scheduled class times or through the office of Student Success.
- Writing assignment assistance: This may include learning how to conduct research; using proofreading tools such as Turnitin; outlining a topic; and applying MLA/APA standards.
- Math, accounting, and computer skills (including file management).
- Test-taking techniques.
- Note-taking skills development.
- Study skills development.
- Time management.

**Instructor:** Greg Ballard                      **Room/phone:** 122 / (309) 692-4092 x1220  
**Midstate email:** [gaballard@midstate.edu](mailto:gaballard@midstate.edu)  
**Office Hour(s):** W 5:00pm – 6:00pm or By Appointment (student arranges)

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**Policies and Procedures:**

- 1) The instructor expects the student to let him know if they are having any problems within the class and related Chapters. The instructor is here to answer the student's questions and assist them. If the student does not understand what is covered in class and courseware, **PLEASE** let the instructor know.
- 2) Regular class attendance is expected. It is the student's responsibility to notify the instructor ahead of time when a class will be missed. If you know of a time conflict to occur, turn in your homework early. If the instructor receives no call or email before the missed class period, the student would be considered absent and no makeup would be allowed for that day. Makeup exams will only be given in case of extreme, fully-reasonable situations.
- 3) In order to keep up with the class material, all class activities have to be completed in the indicated time. Homework assignments, in particular, are due at the beginning of the class period; otherwise, they will be considered late. Late homework will be assessed a 10% penalty per class period.
- 4) General "in-class" policies:
  - Cell phones should be silent (off or set to vibrate).
  - If necessary, take phone calls outside of the class, away from the classroom door.
  - The instructor reserves the right to answer any cell phones that disturb class.
  - Students engaging in disruptive behaviors such as surfing the Internet, Chat, IM or any other activity during lecture will have their score reduced on the exam over this material by 10%.

**Participation Requirements:**

- This class will consist of 12 classes. And the instructor expects each student to participate in all classes when present.
- Points are awarded for attending class and participating in the lecture AND by submitting a short summary for those weeks that contain discussion assignments.

**Examination Information:**

There are several quizzes throughout the term as listed in the below course outline. There is a final exam given during week 12.

**Methods of evaluating student performance:**

1. All assignments must conform to the rules outline on that assignment.
2. Work must correctly answer questions or must clearly show that you completed the assignment.
3. If you have any questions about an assignment, please ask before the work is due.

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4. Students are expected to take all exams when administered. Make-up exams are a privilege granted at the discretion of the instructor.
5. You may get help from the instructor or other students.
6. You may not copy another student's work either in whole or in part.
7. If you are in doubt the help you are giving is permissible, ask!
8. Plagiarized assignments are given a grade of "0" with no opportunity to resubmit the assignment. (see Midstate's plagiarism policy)
9. This class grades each student on an individual basis. Each student is expected to do their own work.

**Instructor's Grading Scale:**

1. Quizzes: 10%
2. Labs: 20%
3. Participation: 10%
4. Project: 40%
5. Final: 20%

**Project Information:**

A separate handout will be provided that will detail the project for this course. It has been divided into 4 parts, each worth 25% of the project's grade. Parts are further divided into tasks and an executive summary. Check the course outline for when each is due. I strongly encourage you to keep up with the tasks for this project. Waiting will not only accumulate late penalties, but will make it difficult to complete the full project.

**Lab Information:**

Labs will be completed using the "Virtual Security Cloud Lab Access" web application. This allows a virtual sandboxed environment to be provisioned on demand. Access will be through a supported web browser on a computer with an internet connection.

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**Course Outline**

<b>Week</b>	<b>Topic</b>	<b>Objectives</b>	<b>Class Activities</b>
1	CH 1-Security Threats to Linux	1	Discussion: Pros and Cons of Open Source Software Code  Lab 1
2	CH 2-Basic Components of Linux Security  CH3-Starting Off: Getting Up and Running	1	Discussion: Identifying layers of Access Control in Linux  Lab 2  Due: Project Part 1 Task 1 Lab 1 assignments
3	CH 4-User Privileges and Permissions	2	Discussion: Compromising an Online System  Lab 3  Due: Project Part 1 Task 2 Project Part 1 Task 3 Lab 2 assignments
4	CH 5-Filesystems, Volumes, and Encryption	3,4	Quiz 1  Lab 4  Due: Project Part 1 Task 4 Project Part 1: Executive Summary Lab 3 assignments

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5	CH 6-Securing Services	3,4	Quiz 2 Lab 5 Due: Project Part 2 Task 1 Lab 4 assignments
6	CH 7-Networks, Firewalls, and More CH 8-Networked Filesystems and Remote Access	5	Discussion: Determining Firewall Rules Lab 6 Due: Project Part 2 Task 2 Lab 5 assignments
7	CH 9-Networked Application Security	6,9	Quiz 3 Due: Project Part 2 Task 3 Project Part 2 Task 4 Lab 6 assignments
8	CH 10-Kernel Security Risk Mitigation CH	7,9	Quiz 4 Lab 7 Due: Project Part 2 Task 5 Project Part 2: Executive Summary
9	11-Managing Security Alerts and Updates	7,9	Discussion: Using Community and Vendor support for Managing Software

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			<p style="text-align: center;">Lab 8</p> <p style="text-align: center;">Due: Project Part 3 Task 1 Lab 7 assignments</p>
10	<p style="text-align: center;">CH 12-Building and Maintaining a Security Baseline</p> <p style="text-align: center;">CH 13-Testing and Reporting</p>	9	<p style="text-align: center;">Quiz 5</p> <p style="text-align: center;">Lab 9</p> <p style="text-align: center;">Due: Project Part 3 Task 2 Lab 8 assignments</p>
11	Chapter 14: Detecting and Responding to Security Breaches	9	<p style="text-align: center;">Discussion: Comparing Backup and Recovery Tools</p> <p style="text-align: center;">Quiz 6</p> <p style="text-align: center;">Lab 10</p> <p style="text-align: center;">Due: Project Part 3 Task 3 Project Part 3: Executive Summary Lab 9 assignments</p>
12	Chapter 15: Best Practices and Emerging Technologies	1	<p style="text-align: center;"><b>FINAL EXAM</b></p> <p style="text-align: center;">Due Project Part 4 Task 1 Project Part 4: Executive Summary Lab 10 assignments</p>



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