

CMIT 391 7980 Linux System Administration (2198)

CMIT-391

Fall 2019 Section 7980 3 Credits 10/21/2019 to 12/15/2019

Faculty Contact

John Galliano John.Galliano@faculty.umuc.edu

Course Description

(Designed to help prepare for the Linux Professional Institute Certification 1 [LPIC-1] and Linux+ exams.) prerequisite: CMIT 265. A study of the Linux operating system. The goal is to configure and manage processes, user interfaces, device files, print facilities, file systems, task automation, the boot-up/shutdown sequence, disk storage, network connectivity, system security, users, and groups. Students may receive credit for only one of the following courses: CMIS 390, CMIT 391, or CMIS 398U.

Course Introduction

This course is a study of Linux system administration, including how to manage system resources (users, group users, and system storage). By the completion of this course, you will be able to configure, secure, manage users, and apply user- and host-based security. You will also be exposed to automation, cloud, and virtualization technologies.

You will participate in lab simulation activities and evaluate system administration concepts as applied to a user base. The primary focus is to manage user and group resources, secure a workstation on a network, and start and stop Linux operating system services. Concepts learned in this course will be directly applicable to the Linux system administration field.

Note: This course is identified as a prerequisite for another course at UMUC. Successful completion of this course is required to advance to the next course in a sequence. A grade of Withdrawal (W), Failure for non-attendance (FN), Failure (F) or Incomplete (I) will not meet a prerequisite requirement. You may be barred from enrolling in or may be removed from courses for which you do not have the necessary prerequisites. Keep track of your progress in this course. If you are uncertain about your standing, consult with your instructor. You should also work with an academic advisor to ensure you are aware of your options and are meeting all necessary program requirements when planning your schedule.

Course Outcomes

After completing this course, you should be able to:

- demonstrate proficiency using the Linux command line and constructing shell scripts
- perform maintenance tasks, including user and system management
- install and configure system services
- configure and troubleshoot network connectivity
- apply appropriate system security measures

Course Materials

[Click to access your course materials information \(http://webapps.umuc.edu/UgcmBook/BPage.cfm?C=CMIT%20391&S=7980&Sem=2198\)](http://webapps.umuc.edu/UgcmBook/BPage.cfm?C=CMIT%20391&S=7980&Sem=2198)

* Class Guidelines

Students with Questions or Concerns

If you have questions related to the course content or any of the graded deliverables, please contact the instructor. For questions and concerns related to advising, please write to ugadvising@umuc.edu or call (301) 985-7000 or, toll-free, (800) 888-8682.

For other questions and concerns, you can contact your program chair by writing to cite@umuc.edu or by calling (240) 684-2840. Please be sure to mention the course name, course number, and your section number in the "Subject:" field of your e-mail. Your e-mail will be treated confidentially.

Writing and Research

Effective writing is critical to the intellectual life of university students and graduates within the workplace. Effective managers are usually effective communicators. Your work in this course must demonstrate your ability to master and effectively communicate course content. Effective writing

- Meets the needs of the reader
- Adequately covers the subject
- Uses expected conventions of format and organization
- Demonstrates use of credible reasoning and evidence
- Satisfies standards of style and grammatical correctness
- Requires 100% compliance with UMUC's zero-tolerance policy regarding plagiarism

TurnItIn Registration

All CMIT courses and sections require use of the TurnItIn service to check student papers for ORIGINALITY. Please see the TurnItIn FAQs available from the UMUC library for more details, <http://www.umuc.edu/library/libresources/turnitin.cfm>. If you wish to not have your paper stored in TurnItIn, you must notify your instructor within the first two weeks of the course.

You will need to create a TurnItIn student account if you do not already have one. You can find detailed instructions on setting up your TurnItIn account in the TurnItIn Instructions document, found in **Content > Week 1 > Course Introduction**.

TurnItIn Originality reports will be reviewed for passages that match to sources but do not have a citation.

Your instructor will provide additional information as to which assignments for this course must be submitted to TurnItIn.

Originality Statement

All materials submitted must be original materials developed solely for use in this class and must conform to UMUC's academic policies. Submission of reused materials may result in a reduced grade or non-acceptance of the assignment at the faculty member's discretion.

Attendance and Participation

Although attendance does not contribute to your grade, participation does. By registering for an online or hybrid course, you have made a commitment to participate in class discussions and activities as well as other online activities. Please plan to participate regularly. You will note in the grading policy that your participation counts towards your final grade. Expectations and grading criteria for participation are fully described under Project Descriptions below.

All students will be held to the highest standards for language and content in e-mails and conference interaction (including attachments). Abusive and derogatory language and unacceptable content will not be tolerated. Any student engaging in this type of behavior will be reported to the UMUC provost. Please read the UMUC Policy on the Code of Student Conduct, which is located under the Syllabus and Academic Policies link. All interaction must be relevant to the topic being discussed and show a reasoned approach to the discussion. If possible, include information from the text and other sources to make your point.

Refer to the Project Descriptions section of this syllabus for more information on how discussions will be assessed.

Late Assignments

The assignments, participation (discussion topics and Web activities), project, and final exam should be submitted on time. You will have a long lead time in which to prepare, ask questions, and seek help. Therefore, unless a major accident, illness, or work assignment (with supporting documentation) prevents you from submitting work on time, **late assignments will not be accepted**. Should faculty grant an exception, a late penalty might be applied.

Extra Credit

Extra credit is not available.

Incompletes

Do not expect an Incomplete in the course unless you have serious personal problems that occur very close to the end of the term. The University of Maryland University College regulations are strict about the assignment of an Incomplete. [UMUC's Policy on the Grade of Incomplete and Withdrawal \(http://www.umuc.edu/policy/academic/aa17071.shtml\)](http://www.umuc.edu/policy/academic/aa17071.shtml).

Accessibility Statement

If you have a disability and need accommodations, you must register with Veteran and Disabled Student Affairs. You must provide documentation of the disability and its impact on your performance in the course in order to receive accommodations. Please contact Veteran and Disabled Student Affairs at 240-684-2287 or 800-888-UMUC, extension 2287, or by e-mail at disabilityservices@umuc.edu. The first time you register for services, you will be required to provide current (within three years) paperwork documenting your disability to support your request for accommodation. Documentation may include:

- medical or psychological reports and diagnoses
- aptitude and achievement results and evaluations
- other documentation considered appropriate by UMUC

Working With Linux

You are expected to actually work and interact with the Linux Operating System, with special emphasis on the Command Line Interface (CLI). That means you must have access to a Linux terminal to complete your weekly discussion topics and final project. You are required to use Linux commands and to provide the terminal output. You are not allowed to copy & paste someone else's terminal output from the Internet.

Please ensure you install Virtualization software on your computer and create a Linux Virtual Machine (VM) during Week 1 of the course. Alternatively, you may use the Cloud (AWS, Azure, GCP, etc.), Containers (Docker, Vagrant, etc.), online terminals (webminal, JSLinux, distrotest.net). Be advised that you may face limitations when using that online terminals (no root access, connection latency, etc.). If you need help, your Professor and CMIT Lab Assistants are ready to assist you.

✓ Grading Information

This course consists of the following graded items:

Discussion Participation	15%
Labs	40%
Linux Project	20%
Final Exam	25%
Total	100%

Discussion Participation

NOTE: Please see the "Class Guidelines section above on the use of the Linux OS, CLI and terminal output.

For this class, you are expected to participate in all discussions. To earn full credit for participation, you must:

- Respond to **TWO** of the week's discussion topics by midnight, Eastern time, on Friday of each week, AND
- Respond to at least **TWO** postings from other students to the current week's discussion topics by the end of the class week (midnight, Eastern time, **Sunday**).

Initial responses should demonstrate critical thinking and comprehension of the discussion topic and should be supported by additional research to include the use of outside references. Responses to classmates' postings should be constructive, expand upon points made, ask additional questions, and contribute to the dialogue. A simple "good posting" or "I agree" is not a sufficient comment.

This format is to ensure that all students benefit from seeing and responding to each other's responses. Participation is defined by the quality as well as the number of your postings in the conference. You will not gain any points by merely reading the conference postings. You may expect the instructor to participate in the discussions, but do not expect a response to every posting. If the instructor or another student poses a question to you, you are expected to respond, just as you would during a face-to-face classroom discussion. **Note:** Each student is responsible for reviewing and adhering to the UMUC academic policies that appear in the Additional Information section of this syllabus.

Faculty will assess your participation using the following criteria:

Timing of Initial Postings	On Time	A little late	Very late	No Posting
Response to Initial Posting (2 Required)	10 points Completed posting in response to TWO initial discussion topics before 11:59PM Eastern Time Friday.	7 points Completed posting in response to TWO initial discussion topic before 11:59PM Eastern Time Saturday.	4 points Completed posting in response to TWO initial discussion topic before 11:59PM Eastern Time Sunday.	0 points Did not post initial conference responses before 11:59PM Eastern Time Sunday.
Quality of Initial Postings	Excellent	Good	Poor	No Posting
Quality of Initial Posting (2 Required)	20 points Posted a complete and coherent response to the initial discussion topics. Fully addresses the discussion topic or question. Post was at least 200 words. The response adds value to the discussion, and demonstrate the student's understanding of concepts. The post includes the Student's own Linux OS CLI terminal output.	12 points Posted a mostly complete and coherent response to the initial discussion topics. Addresses the major points of discussion, but misses minor points. Post was less than 200 words. Post adds value to the discussion, and demonstrate student's understanding of concepts but may lack depth, completeness, relevant research, or Linux OS CLI terminal output.	6 points Posts a somewhat coherent response to the initial discussion topics, but is missing major points. Post barely meet minimum requirements but lacks sufficient depth or supporting research. Response is less than 200 words. No effort to include Linux OS CLI terminal output.	0 points Does not post an initial response.
References of the Initial Postings	High-Quality References	Low-Quality References	No References	

References in the Initial Posting (2 Required)	5 points Includes at least one trustworthy and scholarly resource in the response and uses correct IEEE formatting for the citation and reference.	2 points Includes at least one resource, but it is improperly cited and/or are unreliable or non-scholarly resources.	0 points Does not include references.	
Timing of Responses to Student Postings	On Time	No Response		
Response to Student Posting (2 Required)	5 points Completed posting in response to TWO students before 11:59PM Eastern Time Sunday.	0 points Does not respond to another student.		
Quality of Responses to Student Postings	Excellent	Poor	No Response	
Response to Student Posting (2 Required)	10 points Posted a complete and coherent response to fellow students post. Fully addresses the student and adds value to the discussion	5 points Responds to a fellow student, but adds little or no value to the discussion	0 points Does not respond to another student.	

Project Descriptions

Labs

In this course, you will complete online lab activities using Labsim at www.labsimonline.com to complete these activities.

Please see the LabSim Instructions located in **Content > Week 1 > Course Introduction** for more details.

Linux Project

CHOOSE ONLY ONE

Linux Installation Project

Students may select the hands-on install and configuration project. Please see the Assignment folder for more detailed instructions.

Linux Implementation Paper

Students may select to complete a written proposal regarding the implementation of Linux using the provided scenario. Please see the Assignment folder for more detailed instructions.

Academic Policies

ACADEMIC INTEGRITY

University of Maryland University College (UMUC) has adopted a [Philosophy of Academic Integrity \(https://www.umuc.edu/current-students/learning-resources/academic-integrity/philosophy.cfm\)](https://www.umuc.edu/current-students/learning-resources/academic-integrity/philosophy.cfm) to guide the university's commitment to a culture of academic integrity and authentic education encompassing a set of dispositions and behaviors that are socially beneficial, educationally critical, and professionally necessary.

All members of the University community must maintain the highest level of integrity across the academic experience. For students, intellectually honest academic work represents independent analysis, acknowledges all sources of information that contribute to the ideas being explored, and ensures the ability to engage in life and work authentically. Your instructor is your primary resource for how to uphold the highest ethical standards in the context of this course's specific requirements.

Your instructor and other UMUC staff may use Turnitin or other technology resources to support the development and assessment of authentic student writing. To learn more about Turnitin, the feedback it provides, and your options regarding the inclusion of your work in the Turnitin database, visit University guides for Turnitin at umuc.edu/library/libresources/turnitin-students.cfm (<https://www.umuc.edu/library/libresources/turnitin.cfm>) and <http://sites.umuc.edu/library/libresources/turnitin.cfm#studentcopyright> (<http://sites.umuc.edu/library/libresources/turnitin.cfm#studentcopyright>).

Additional resources to support you in authentic learning are available at umuc.edu/academicintegrity (<https://www.umuc.edu/current-students/learning-resources/academic-integrity/index.cfm>).

CLASSROOM CIVILITY

Students are expected to work together cooperatively, and treat fellow students and faculty with respect, showing professionalism and courtesy in all interactions. Please review the Code of Civility for more guidance on interacting in UMUC classrooms: <https://www.umuc.edu/students/support/studentlife/conduct/code.cfm> (<https://www.umuc.edu/students/support/studentlife/conduct/code.cfm>).

POLICIES AND GUIDELINES

UMUC is committed to ensuring that all individuals are treated equally according to Policy 040.30 [Affirmative Action, Equal Opportunity, and Sexual Harassment \(https://www.umuc.edu/policies/adminpolicies/admin04030.cfm\)](https://www.umuc.edu/policies/adminpolicies/admin04030.cfm).

Students with disabilities who need accommodations in a course are encouraged to contact the Office of Accessibility Services (OAS) at accessibilityservices@umuc.edu, or call 800-888-UMUC (8682) or 240-684-2287.

The following academic policies and procedures apply to this course and your studies at UMUC.

150.25	Academic Dishonesty and Plagiarism (https://www.umuc.edu/policies/academicpolicies/aa15025.cfm) - The University expects all members of the university community—students, faculty, and staff—to share the responsibility and authority to report known acts of academic misconduct. Report suspected academic misconduct to your instructor. All cases of academic misconduct will be addressed in accordance with Policy 150.25. This policy also states that faculty may determine if the resubmission of coursework from previous classes (whether or not taken at UMUC), partially or in its entirety, is acceptable or unacceptable. Faculty communicate these expectations to students in writing. If you are unclear about the reuse of your prior work, consult with your instructor.
151.00	Code of Student Conduct (https://www.umuc.edu/policies/studentpolicies/stud15100.cfm)
170.40	The following policies describe the requirements for the award of each degree:
170.41	Degree Completion Requirements for the Graduate School(https://www.umuc.edu/policies/academicpolicies/aa17040.cfm)
170.42	Degree Completion Requirements for a Bachelor's Degree(https://www.umuc.edu/policies/academicpolicies/aa17041.cfm) Degree Completion Requirements for an Associate's Degree(https://www.umuc.edu/policies/academicpolicies/aa17042.cfm)

170.71	Policy on Grade of Incomplete(https://www.umuc.edu/policies/academicpolicies/aa17071.cfm) - The mark of I is exceptional and considered only for certain courses. Students who have completed 60% of their coursework with a grade of B or better for graduate courses or C or better for undergraduate courses and request an I before the end of the term. The mark of I is not available for noncredit courses.
170.72	Course Withdrawal Policy (https://www.umuc.edu/policies/academicpolicies/aa17072.cfm) - Students must follow drop and withdrawal procedures and deadlines available at https://www.umuc.edu/ (https://www.umuc.edu/) under Academic Calendar.
130.80	Procedures for Review of Alleged Arbitrary and Capricious Grading (https://www.umuc.edu/policies/academicpolicies/aa13080.cfm) – appeals may be made on final course grades as described herein.
190.00	Intellectual Property (https://www.umuc.edu/administration/policies-and-reporting/policies/research/intellectual-property.cfm) - All university faculty, staff, and students must comply with University guidelines on the use of copyrighted material. Uploading UMUC or faculty copyrighted material without authorization degrades and corrupts the integrity of the teaching and learning experience and is a potential violation of UMUC policy and copyright law. You must obtain permission to post UMUC or other's copyrighted material to third-party websites, including social learning network sites. UMUC reserves the right to take appropriate action to remove copyrighted material uploaded without authorization.
205.06	Calculation Of Grade-Point Average (GPA) for Inclusion on Transcripts and Transcript Requests (https://www.umuc.edu/policies/academicpolicies/aa20506.cfm) - Note: Undergraduate and Graduate Schools have different Grading Policies (i.e. The Graduate School does not award the grade of D). See Course Syllabus for Grading Policies.
270.00	Acceptable Use (https://www.umuc.edu/administration/policies-and-reporting/policies/fiscal-and-business-affairs/acceptable-use.cfm) - The security of the online classroom is critical to ensuring a strong culture of academic integrity and authentic education at the University. It is a violation of the University's policies for anyone to share logon, password, and any other secure information about a UMUC online account, including credentials required to access the online learning environment.

GRADING

According to UMUC's grading policy, the following marks are used:

	Undergraduate	Graduate
A	90-100	90-100
B	80-89	80-89
C	70-79	70-79*
D	60-69	N/A**
F	59 or below	69 or below
FN	Failure-Non attendance	Failure-Non attendance
G	Grade Pending	Grade Pending
P	Passing	Passing
S	Satisfactory	Satisfactory
U	Unsatisfactory	Unsatisfactory

I	Incomplete	Incomplete
AU	Audit	Audit
W	Withdrew	Withdrew

* The grade of "B" represents the benchmark for The Graduate School. Students must maintain a Grade Point Average (GPA) of 3.0 or higher. Classes where final grade of C or F places a student on Academic Probation must be repeated.

** The Graduate School does not award the grade of D.

COURSE EVALUATION SURVEY

UMUC values its students' feedback. You will be asked to complete an online evaluation toward the end of the term. The primary purpose of this evaluation process is to assess the effectiveness of classroom instruction in order to provide the best learning experience possible and make continuous improvements to every class. Responses are kept confidential. Please take full advantage of this opportunity to provide your feedback.

LIBRARY SUPPORT

Extensive library resources and services are available online, 24 hours a day, seven days a week at <https://www.umuc.edu/library/index.cfm> (<https://www.umuc.edu/library/index.cfm>) to support you in your studies. The UMUC Library provides research assistance in creating search strategies, selecting relevant databases, and evaluating and citing resources in a variety of formats via its Ask a Librarian service at <https://www.umuc.edu/library/libask/index.cfm> (<https://www.umuc.edu/library/libask/index.cfm>).

EXTERNAL LINK DISCLAIMER

This course may contain links to external sites neither owned nor maintained by UMUC. UMUC bears no responsibility for the accuracy, legality, or content of external sites or for that of subsequent links. In addition, the terms of use, security policies, and privacy policies may differ from those of UMUC. Contact the external site for answers to questions regarding its content, terms of use, and policies.

LEARNING MANAGEMENT SYSTEM SUPPORT

Those requiring technical assistance can access Help@UMUC Support directly in LEO under the Help menu. Additional technical support is available 24 hours a day, seven days a week via self-help and live chat at <https://www.umuc.edu/help> (<https://www.umuc.edu/help>) or by phone toll-free at 888-360-UMUC (8682).

SYLLABUS CHANGES

All items on this syllabus are subject to change at the discretion of the Instructor and the Office of Academic Affairs.

Class & Assignment Schedule

Week	Assignments
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1, 21 - 27 Oct 19	<ul style="list-style-type: none"> • Course Introduction <ul style="list-style-type: none"> ◦ Review the "Course Introduction" ◦ Review the "Syllabus" ◦ Enroll in Turnitin ◦ Enroll in Labsim and activate the product • Readings <ul style="list-style-type: none"> ◦ Labsim "Linux Pro Introduction" Module ◦ Labsim "Linux Overview" module ◦ Labsim "Using Linux" module • Assignments: <ul style="list-style-type: none"> ◦ Respond to weekly discussion questions and participate in online discussions ◦ Labsim Online Labs <ul style="list-style-type: none"> ▪ 0.0 Linux Pro Introduction ▪ 1.0 Linux Overview ▪ 2.0 Using Linux
2, 28 Oct - 3 Nov 19	<ul style="list-style-type: none"> • Readings <ul style="list-style-type: none"> ◦ Labsim "Installation and Localization" module ◦ Labsim "Boot and Shutdown" module • Assignments <ul style="list-style-type: none"> ◦ Respond to weekly discussion questions and participate in online discussions ◦ Labsim Online Labs <ul style="list-style-type: none"> ▪ 3.0 Installation and Localization ▪ 4.0 Boot and Shutdown
3, 4 - 10 Nov 19	<ul style="list-style-type: none"> • Readings <ul style="list-style-type: none"> ◦ Labsim "Graphical User Interfaces and Desktops" module ◦ Labsim "Software Installation" module ◦ Labsim "Users and Groups" module • Assignments <ul style="list-style-type: none"> ◦ Respond to weekly discussion questions and participate in online discussions ◦ Labsim Online Labs <ul style="list-style-type: none"> ▪ 5.0 Graphical User Interfaces and Desktops ▪ 6.0 Software Installation ▪ 7.0 Users and Groups
4, 11 - 17 Nov 19	<ul style="list-style-type: none"> • Readings <ul style="list-style-type: none"> ◦ Labsim "Disk and File System Management" module ◦ Labsim "Hardware Installation" module • Assignments <ul style="list-style-type: none"> ◦ Respond to weekly discussion questions and participate in online discussions ◦ Labsim Online Labs <ul style="list-style-type: none"> ▪ 8.0 Disk and File System Management ▪ 9.0 Hardware Installation • Holidays <ul style="list-style-type: none"> ◦ Veterans Day, 11 Nov

5, 18 - 24 Nov 19	<ul style="list-style-type: none"> • Readings <ul style="list-style-type: none"> ◦ Labsim "Processes and System Services" module ◦ Labsim "System Monitoring" module • Assignments <ul style="list-style-type: none"> ◦ Start Working on Linux Paper ◦ Respond to weekly discussion questions and participate in online discussions ◦ Labsim Online Labs <ul style="list-style-type: none"> ▪ 10.0 Processes and System Services ▪ 11.0 System Monitoring
6, 25 Nov - 1 Dec 19	<ul style="list-style-type: none"> • Readings <ul style="list-style-type: none"> ◦ Labsim "Networking" module ◦ Labsim "Security" module • Assignments <ul style="list-style-type: none"> ◦ Continue Working on Linux Paper ◦ Respond to weekly discussion questions and participate in online discussions ◦ Labsim Online Labs <ul style="list-style-type: none"> ▪ 12.0 Networking ▪ 15.0 Security • Holidays <ul style="list-style-type: none"> ◦ Thanksgiving Day, 28 Nov
7, 2 - 8 Dec 19	<ul style="list-style-type: none"> • Assignments <ul style="list-style-type: none"> ◦ Respond to weekly discussion questions and participate in online discussions ◦ Submit Linux Project ◦ Labsim Online Labs <ul style="list-style-type: none"> ▪ 13.0 Cloud and Virtualization ▪ 14.0 Scripting and Automation
8, 9 - 15 Dec 19	<ul style="list-style-type: none"> • Assignments <ul style="list-style-type: none"> ◦ Respond to weekly discussion questions and participate in online discussions ◦ Complete Course Evaluation ◦ Take the final exam