Class : W 5:45 – 9:00 P.M.
Instructor : Dr. Anthony Chung
Office : CDM 844
Office Hours : W Th 3:15-4:45 PM / Other times by appointment

Phone : (312)-362-8724

Email : achung@depaul.edu

IMPORTANT:
While email is a great means of communication, increasingly we are bombarded with a volume of emails that is getting difficult to manage. In order to manage emails to better serve both the students and the professor. **Please pay attention to ALL of the following:**

- Please include **TDC384** or **TDC484** (depending on the course you enrolled in, no space, case insensitive) in the subject line of the email as they will be directed to the appropriate mailbox where I check for emails related to this course.

- I answer student emails, return phone calls, and respond to discussion forums etc on **Tuesday and Friday afternoons until 4pm.** In this way you know exactly when you expect to hear from me by these means of communications. If you do not hear from me by the end of listed days and time please check to make sure that you included TDC384 or TDC 484 in the subject, email me again, or call to leave a message.

- My **office hours are on Wednesdays and Thursdays** (see time above). I encourage you to use them. These are first-come-first-serve hours. There is no need to make an appointment. I am guaranteed to be available in my office during these hours. If I cannot make some office hours due to special circumstances, announcements will be made on d2l.

  Depending on the complexity of your questions, sometime we can get more out of meeting in person or talking over the phone then by emails.

- Given my response time frame and office hours, you should **work on your assignments early so as to give you ample time to ask questions.**

- Please observe the following email etiquette so that we will be able to better focus our energy on learning and getting the most out of the class. It is also part of being professional. Some recruiters were abhorred at some of the emails received from recent recruits. It is important to form the good habit of writing appropriate emails in a professional setting.

    - Before sending questions via email or posting questions on the d2l discussion forum, make sure that your question is not already answered on the course syllabus, the d2l website (announcements, discussion forums, assignment

information etc), or in the lecture (view the class recording if you missed a class, or if you are an OL student).

- Questions that are of general interest to the entire class should be posted on the course discussion forum.
- In addition to including TDC384 or TDC 484 in the subject line, **be specific about the subject of the email in the mail subject heading and use proper spelling, grammar, and punctuation. Please DO NOT respond to an old email with a different subject when asking a new question.**
- **Include your full name in the message body.**
- While you have my permission to address me as Anthony or Tony, you should not assume that you could address other professors on a first name basis unless you have their explicit permissions.

Course Home Page : https://d2l.depaul.edu (Open on or before January 4, 2019)

Prerequisites: A programming course.

Optional Text: (Available through DePaul's ebooks library – Safari)

These are NOT required as most information can be easily found via the web. Some course materials are from these books.

- Ryan Tischer and Jason Gooley, **Programming and Automation Cisco Networks**, Cisco Press, (September 2016), ISBN-13: 978-1-58714-465-3.
- Jason Edelman, Scott Lowe, and Matt Oswalt, **Network Programmability and Automation: Skills for the Next-Generation Network Engineers**, O'Reilly, (February 2018), **ISBN-13:** 978-1491931257

Course Description and Objective:

This is a hands-on course on using scripts to develop practical applications for Network Management. Students will first learn the fundamentals of Linux operating system and script language(s) for task automation, and use scripts to develop dynamic web sites. After that, the course will cover Simple Network Management Protocol (SNMP), and use Application Programming Interface (API) to automate networks tasks of Fault Management, Configuration Management, Accounting Management, Performance Management, and Security Management (FCAPS). The final project of the course is to develop a dynamic web site with the above five functional areas to manage Linux servers, Ethernet switches and IP routers.

Learning Outcomes:

After this course you should be able to:

- Identify network management tasks that are suitable for automation.
- Apply scripting to perform the function of auto discovery of active network elements.
- Apply scripting to collect data from syslog and identify security risks and account activities.
- Use different approaches (CLI, telnet, SNMP, etc.) to perform network management functions.
- Apply SNMP API to read/write configuration data (and traps) and conduct network management functions on Ethernet switches and IP routers.
- Develop a web site to perform network management functions.
- Use 3rd party tools (e.g., the MRTG) to conduct performance analysis and generate time series graphs.

Grading

HW01	**4%**
HW02-08 (8% each)	**56%**
Project	**15%**
Final	**15%**
Class Participation	**10%**

A	90-100%
A-	87-89%
B+	84-86%
B	80-83%
B-	77-79%
C+	74-76%
C	70-73%
C-	67-69%
D+	64-66%
D	60-63%
F	< 60%

Students at or above the class average (calculated from grades 60% or above) will receive at least a A-. I will modify the grading scale if the class average is below 87%.

Notes:

- **Changes to Syllabus:** This syllabus is subject to change as necessary during the quarter. If a change occurs, it will be thoroughly addressed during class, posted under Announcements in D2L and sent via email.

- **Late assignments will not be accepted.** I am strict about this. Homework solutions are available right after a homework is due and I cannot accept any assignments submitted after that. **All due dates and time are given in the submission boxes.** Please check the schedule and be sure of the due dates. You must use the homework submission system (drop box) through d2l. If there are problems with the submission system, you may email me a copy of the assignment BEFORE the due time.

- **About Class Participation**

    - **For BOTH in-class and online students**: For every class with lecture there will be a **participation quiz** which will be open 15 minutes after a class. The questions will be on the in class exercises and certain points that we emphasized in class. Students are allowed to take the quiz **up to 10 times** before the quiz is due and the **highest** score will be used towards the final grade. To do well in the quiz you are recommended to
        - Take notes during the class, especially on points not in the slides but were filled in during the class, and points where I emphasized that students should write down.
        - Make sure that you copy down the answers of the in class exercises. Some quiz questions will be on the in class exercises.

      Here's a link from Harvard about the importance of note taking (and resources) https://hilt.harvard.edu/blog/note-taking-tools-and-tips

      Although you can choose to take notes using you laptop or by hand, here's an article on recent research showing the advantage of taking notes by hand. http://www.npr.org/2016/04/17/474525392/attention-students-put-your-laptops-away

    - **Notes for in-class students**: Class attendance is essential as lectures may cover topics outside the readings. **Attendance is required** for this class. To earn the full participation point for each class you **must be in class for the entire duration, participate in activities such as note taking, in class exercises, discussions, and be fully engaged. Engaging in activities not related to the class, such as (but not limited to) texting/emailing during the class, or working on assignments from another class, will result in lowered**

participation grade. Also if there's a **documentable** and **acceptable** reason (such as being sick with a doctor's slip, or a note from your manager about work responsibility), make up for the participation points can be considered.

Undocumented absence from class will result in lowering of participation quiz score.

- **Notes for OL students**: Viewing of the lecture is expected. In-class exercises are usually assigned as part of the OL participation quiz. OL students should attempt the problems on their own first and then correct the answers if necessary after viewing the solutions presented in the lecture. This is a good way to learn the materials.

- Any grading questions **must be directed to me within 1 week of the posting of the grade. No grade adjustments will be made more than a week after the grade is posted. You should email me with the following information:**
  - **The assignment**
  - **The problem in question**
  - **Why you think you should get a grade rather than the one given.**

- About the final:
  - The final will have various forms of questions including matching, fill-in-the-blanks, scripting and coding.
  - Study guide will be provided a week before the exam.
  - Exams are open books and notes.
  - You are given 3 hours for the exams.
  - **For in class students** – The final is on **March 20**, during regular class time and in the regular classroom.
  - **For OL students** – at least a week before the final you will receive information about enrolling in a proctored exam. If not please email CDM-OLExams coled@cdm.depaul.edu for help and cc me. Make sure you include TDC384 or TDC 484 in the subject line. The final exam window is
    - **March 19 to March 21, 2019.**

- **Wireless Internet Access Policy:** Please **do not** work on your laptops / Internet during class **except for course related activities**. If you need to do something un-related to the class, please leave the room and complete what you need to do.

- Please check DePaul's academic calendar https://academics.depaul.edu/calendar/Pages/default.aspx for important dates such as last day to add/drop/withdraw from classes.

- **Please make sure that you read and understand DePaul's academic integrity policy: http://academicintegrity.depaul.edu/AcademicIntegrityPolicy.pdf For additional resources concerning academic quality, please check here: http://academicintegrity.depaul.edu/Resources/index.html All assignments are individual assignments. You should not work so close with another student as to produce solutions that are identical or almost identical.**
  - **Under no circumstances should you copy or use simple paraphrasing of someone else's work, including course materials and lecture slides, without giving proper credits and references.**
  - **Please be aware that any written work submitted in this course may be verified using *Turn-It-In* technology in order to ensure that the work is the student's own creation and not in violation of the University's Academic Integrity Policy. Submission of work in this course constitutes a pledge that the work is original and consent to have the work submitted to verify that fact.**

- **Student Attitude:** A professional and academic attitude is expected throughout this course. Measurable examples of non-academic or unprofessional attitude include but are not limited to: talking to others when the instructor is speaking, mocking another's opinion, cell phones ringing, emailing, texting or using the internet whether on a phone or computer. If any issues arise a student may be asked to leave the classroom. The professor will work with the Dean of Students Office to navigate such student issues.

- **Civil Discourse:** DePaul University is a community that thrives on open discourse that challenges students, both intellectually and personally, to be Socially Responsible Leaders. It is the expectation that all dialogue in this course is civil and respectful of the dignity of each student. Any instances of disrespect or hostility can jeopardize a student's ability to be successful in the course. The professor will partner with the Dean of Students Office to assist in managing such issues.

- **Cell Phones/On Call:** If you bring a cell phone to class, it must be off or set to a silent mode. If you are required to be on call as part of your job, please advise me at the start of the course.

Schedule (Tentative):

Note: Participation quizzes are due at 11:59pm, while all other assignments are due at 5:45 pm.

Date	Topic	Assignments
1-9	Course Introduction • Scripting for Network Automation • Linux System Administration • Linux Command Primer • HTML Primer • Editing	
1-16	Introduction to Linux Shell Programming • Scripting vs. Programming • Shell Data Structures • Shell Control Structures • Network Probing and Auto Discovery	**Non-graded assignments due (Academic integrity pledge, and posting of self-introduction on discussion forum)** **HW01 Due** **1-9 participation due**
1-23	Introduction to Python (Basics) • Syslog analysis • Intrusion detection	**HW02 Due** **1-16 participation due**
1-30	Python (II) • Using "Tables" for problem solving • Time API • Accounting Management	**HW03 Due** **1-23 participation due**
2-6	Python API and Dynamic Web Development • HTML and Web Development • Web Administration • Performance measurement	**HW04 Due** **1-30 participation due**
2-13	Network Management and SNMP • telnet scripting (Shell) • Command encapsulation in Python	**HW05 Due** **2-6 participation due**
2-20	Network Configuration Management • Python SNMP API	**HW06 due** **2-13 participation due**
2-27	Network Performance Management • Traffic measurement • MRTG	**HW07 due** **2-20 participation due**
3-6	Network Fault Management • SNMP Trap • Final Project Requirements	**HW08 due** **2-27 participation due**

	• Regular Expression	
3-13	Course Reflection • Database and MySQL • Final Project Q&A • Final Exam Preview	**Final Project due on 3-18** **3-6 participation due**
3-20	**Final exam for in-class students** (open books)	**3-13 participation due**

Online Instructor Evaluation
Evaluations are a way for students to provide valuable feedback regarding their instructor and the course. Detailed feedback will enable the instructor to continuously tailor teaching methods and course content to meet the learning goals of the course and the academic needs of the students. They are a requirement of the course and are key to continue to provide you with the highest quality of teaching. The evaluations are anonymous; the instructor and administration do not track who entered what responses. A program is used to check if the student completed the evaluations, but the evaluation is completely separate from the student's identity. Since 100% participation is our goal, students are sent periodic reminders over two weeks. Students do not receive reminders once they complete the evaluation.

Email

Email is the primary means of communication between faculty and students enrolled in this course outside of class time. Students should be sure their email listed under "demographic information" at http://campusconnect.depaul.edu is correct.

Academic Integrity Policy

This course will be subject to the faculty council rules on the Academic Integrity Policy

Plagiarism

The university and school policy on plagiarism can be summarized as follows: Students in this course, as well as all other courses in which independent research or writing play a vital part in the course requirements, should be aware of the strong sanctions that can be imposed against someone guilty of plagiarism. If proven, a charge of plagiarism could result in an automatic F in the course and possible expulsion. The strongest of sanctions will be imposed on anyone who submits as his/her own work a report, examination paper, computer file, lab report, or other assignment which has been prepared by someone else. If you have any questions or doubts about what plagiarism entails or how to properly acknowledge source materials be sure to consult the instructor.

Incomplete

An incomplete grade is given only for an exceptional reason such as a death in the family, a serious illness, etc. Any such reason must be documented. Any incomplete request must be made at least two weeks before the final, and approved by the Dean of the College of Computing and Digital Media. Any consequences resulting from a poor grade for the course will not be considered as valid reasons for such a request.

Students with Disabilities

Students who feel they may need an accommodation based on the impact of a disability should contact the instructor privately to discuss their specific needs. All discussions will remain confidential.
To ensure that you receive the most appropriate accommodation based on your needs, contact the instructor as early as possible in the quarter (preferably within the first week of class), and make sure that you have contacted the Center for Students with Disabilities (CSD) at:
Student Center, LPC, Suite #370
Phone number: (773)325.1677
Fax: (773)325.3720
TTY: (773)325.7296