**DePaul University CDM**

**CNS 380/CNS 597 Course Syllabus**

**Part 1. Instructor and Section Information**

Instructor’s Name: Ryan Haley

Office Hours: Monday 5:00 – 5:45pm, Wednesday 9:00 – 9:45pm (CDM 342) OR by appointment

Phone: N/A E-mail: rhaley@mail.depaul.edu

Expect responses within 24 hours. Otherwise, reach out again.

Semester: Winter 2020 Section Number: 801 Room Number: CDM 658

Days and hours this section meets: Monday, 5:45pm – 9:00pm

First day of class: Monday, January 6th, 2020

Last day of class: Monday, March 18th, 2020

Date of final exam: N/A (online)

Last Date to Drop and Receive Refund: January 17th, 2020

Last Date to Drop this class with a “W” grade: February 21st, 2020

**Part 2. Course Information**

1. **Course Identification**

*Prefix and Number* CNS 380

*Course Title* Advanced Cybersecurity Automation

*Hours*

*4 Credit Hours*

1. **Catalog Description**

*Prerequisite*  (CSC 242 or CSC 243) and (CNS 378 or CSC 374 or CSC 282)

*Corequisite*  None

*Course Description*

This hands-on course will introduce students to real world exercises and scenarios Students will create tools to perform automation, monitoring, red and blue team operations. Technics will be applied to topics such as operating systems, infrastructure hardening, virtualization, sandboxing, incident response, and web applications.

1. **Major Course Concepts**

* + Protocol Analysis
  + Web Application Fundamentals
  + OWAP
  + BASH
  + Powershell
  + Incident Response
  + Secure Coding Practices

1. **Expected Outcomes for Student Learning**

1. Assess systems and applications for security weaknesses
2. Identify scenarios which could be automated using scripting tools (Examples include web scraping, fuzzing, exploitation such as injection, and brute forcing).
3. Develop tools to monitor system activities (This will allow students to quickly parse logs and correlate events to identify adverse behavior.).
4. Create a stable and safe coding environment and use a revision control system (Examples include creating a virtual environment and using git to track and maintain changes).
5. Integrate Python with 3rd party libraries to interact with low level operations.
6. Create methods to automate system processes.
7. Use built-in languages within an OS to perform automation tasks.

1. **Instructor Policies**

* All assignments have a due date. Late assignments will NOT be accepted after 24 hours. Assignments between 0 and 24 hours late will receive a point deduction.
* If there is a conflict between due dates (D2L vs syllabus), the syllabus due date will take precedence.
* Students are expected to be on time and attend all in-class sessions.
* Students are expected to always be courteous of others.
* Students are expected to be prepared and participate in class discussions and labs.
* Students are expected to be focused and paying attention during lecture.
* Students are expected to work well with others during group labs and activities.
* Students are expected to complete all labs, online activities and miscellaneous assignments by the due dates.
* The topical outline is solely at the discretion of the instructor and may be modified at any time to better accommodate class time and schedule.
* **Cheating/Plagiarism Policy: Any student caught cheating or plagiarizing will receive zero points for that topic and/or fail class based on Code of Student conduct rules.**
* Each student is responsible for adhering to the Code of Student Conduct as stated in the college catalog.
* Online students are expected to watch all lectures. Material on exams may come from in class discussions.
* All grades are final. No extra credit will be given

1. **Course Websites**

* D2L will be used as the main interface for the class. Notes, assignments, and all other course material will be posted here. You can access it by going to d2l.depaul.edu. Class lectures can also be found here.

**Part 3. Classroom Information**

1. **Topical Outline/Course Schedule/Calendar**

(Major course components, assignments, and assessments in a suggested sequence)

|  |  |  |  |
| --- | --- | --- | --- |
| ***Lesson*** | ***Date*** | ***Topic*** | ***Activities Due*** |
| ***1*** | 1/6 | Introduction/Review/Python |  |
| ***2*** | 1/13 | Review/Regular Expressions | Python Homework |
| ***3*** | 1/20 | **NO CLASS** |  |
| ***4*** | 1/27 | Git/Web Basics | Python Homework #2/**Quiz #1** |
| ***5*** | 2/3 | Web Scripting | GIT/Web Homework #1 |
| ***6*** | 2/10\* | Network Scripting | Web Homework #2/**Quiz #2** |
| ***7*** | 2/17 | Crypto | Network Scripting Homework |
| ***8*** | 2/24 | OS | Crypto Homework /**Quiz #3** |
| ***9*** | 3/2 | Sandboxing/ Incident Response /**FINAL RELEASED** | OS Homework |
| ***10*** | 3/9 | Linux/BASH/Work on Final | Sandboxing/IR Homework/**Quiz #4** |
| ***11*** | 3/16 | Class Review/Wrap-up | Final |

1. **Books, Supplies, and Supplementary Materials** 
   1. *Textbooks/Reading list*

*Required*

1. None

*Optional*

*Blackhat Python*

*Automate the Boring Stuff with Python: Practical Programming for Total Beginners*

1. **Classroom Policies and Procedures**.

1. ***College Statement about grades of ‘F’ and withdrawal from class.***

A student who does not withdraw officially from a course may receive a grade of ‘**F**’, depending on course progress of course attendance, which will become a part of the student’s permanent record. The withdrawal date is listed in the General Information sheet.

1. ***Final Exam Information***

The final exam will be tentatively be take home.

**d. *Attendance Policy***

Attendance is expected. **Not all required material is documented in lecture notes and examples, and important information will be conveyed verbally during lecture.** Excessive absence can affect final grade. (see class participation in grading section). You are responsible for all material covered, assignments delivered or received, and announcements made in class sessions that you miss. All students are required to watch the class lecture, either online or in person.

# e. *Academic Integrity and Plagiarism*

**Cheating and plagiarism is not allowed in this class. Any student caught in the act of cheating/plagiarism will be penalized based on the severity of the offence up to and including immediate dismissal from class and may result in a grade of ‘F’ in the course.**

**This is defined as copying another’s work and using it as your own. You are free to get ideas from other sources (books, internet, etc), but you are by no means authorized to copy their work and you must cite the original sources from which your ideas stemmed.**

# f. *College Documentation Styles*

**MLA** and **APA** have been adopted as the official documentation styles of the college. The selected documentation style for this class is MLA.

# g. *Code of Student Conduct*

Each student is responsible for adhering to the Code of Student Conduct as stated in the college catalog.

# h. *Cautionary Statement*

Students with an impaired ability to concentrate may risk jeopardizing safety in the classroom for themselves, their classmates and their instructor. If your ability to concentrate is impaired, you should discuss this matter with your instructor prior to operating equipment or performing a laboratory procedure. Students are responsible for reporting to their instructor any condition that would impair the ability to concentrate. Failure to notify your instructor of this issue may be a violation of the Code of Student Conduct.

1. **Safety or Health issues**

Please inform the instructor of any safety concerns or health issues that may affect your learning ability in this class.

1. **Notice of Copyright**

Materials in this course—unless otherwise indicated—are protected by United States copyright law [Title 17, U.S. Code]. Materials are presented in an educational context for personal use and study and should not be shared, distributed, or sold in print—or digitally—outside the course without permission. As a student your ability to post or link to copyrighted material is also governed by United States copyright law. The law allows for students to post or link to copyrighted materials within the course environment when the materials are pertinent to course work. Instructors—or other staff of the institution—reserve the right to delete or disable your post or link if in their judgment it would involve violation of copyright law. Any student that is found in violation may result in immediate failure of the course and academic integrity violation filed.

1. **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.

**l:** **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.

**m: Incomplete**

Incompletes will only be given under extraordinary circumstances. If the student fails to show an acceptable level of work leading up the request, it will be denied by the instructor. If the student is experiencing difficulty during the class, they must reach out before the request is made.

**Graded assignments and policies**

* 1. Homework/Labs 40 points

Homework will consist of research problems as well as coding labs. These are due by 5:45pm each Wednesday.

* 1. Quizzes 20 points

Quizzes will be given weekly in lieu of a Midterm. The topic will cover the lecture and homework from the week prior. Quizzes will be given in class. The lowest grade will be dropped.

* 1. Final (CTF) 40 points

The final project will be cumulative and will challenge you to use your knowledge to create scripts to complete tasks and collect flags in a hosted environment.

1. Class Participation:

Class participation may affect final course average from a range of +3% to -3%. The following percentage adjustments will be applied to the final grade based on demonstrated class participation/contribution.

+3%: highly meaningful participation/contribution in class or on slack AND up to one missed/incorrect attendance quiz AND all posts made

+1%: solid participation/contribution in class or on slack AND two missed/incorrect attendance quiz OR one post missed

0%: minimal/no participation/contribution in class or on slack OR three missed/incorrect attendance quizzes OR two posts missed

-1%: passive, non-relevant participation/contribution in class or on slack, OR four missed/incorrect attendance quizzes OR three posts missed

-3%: passive, non-relevant participation/contribution in class or on slack, OR five or more missed/incorrect attendance quizzes OR five or more posts missed

1. *General grading policy, including criteria and weighting for final semester grade*

Grading for courses in this program is as follows:

**A 90 – 100**

**B 80 – 89**

**C 70 – 79**

**D 60 – 69**

**F < 60**

1. Make-up policy

There are no makeup assignments unless otherwise indicated by the instructor of this course.

1. Extra-credit policy

There are no extra credit assignments unless otherwise indicated by the instructor of this course.

1. Late-Work policy

Late work will not be accepted after 24 hours. Assignments submitted 0 – 24 hours late will incur a penalty. All assignment deadlines are posted in this syllabus. **This will be strictly enforced.**

* + - 25% off total possible points – up to 1 hour late
    - 50% off total possible points – up to 12 hours late
    - 75% off total possible points – up to 24 hours late
    - 0 points (100% deduction) – after 24 hours late

# Winter 2020 – CNS 380-901 Advanced Cyber Automation

1.       Last date to drop and get a refund: 1/17/2020

2.       Last day to drop this class with a ‘W’ grade:  02/21/2020

**University Policies**

**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.

**Online Course Evaluations**

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 three weeks. Students do not receive reminders once they complete the evaluation. Please see <https://resources.depaul.edu/teaching-commons/teaching/Pages/online-teaching-evaluations.aspx> for additional information.

**Academic Integrity and Plagiarism**

This course will be subject to the university's academic integrity policy. More information can be found at <https://resources.depaul.edu/teaching-commons/teaching/academic-integrity/Pages/default.aspx>.

**Academic Policies**

All students are required to manage their class schedules each term in accordance with the deadlines for enrolling and withdrawing as indicated in the University Academic Calendar. Information on enrollment, withdrawal, grading and incompletes can be found at:

<http://www.cdm.depaul.edu/Current%20Students/Pages/PoliciesandProcedures.aspx>

**Incomplete Grades**

An incomplete grade is a special, temporary grade that may be assigned by an instructor when unforeseeable circumstances prevent a student from completing course requirements by the end of the term and when otherwise the student had a record of satisfactory progress in the course. All incomplete requests must be approved by the instructor of the course and a CDM Associate Dean. Only exceptions cases will receive such approval. Information about the Incomplete Grades policy can be found at

<http://www.cdm.depaul.edu/Current%20Students/Pages/Grading-Policies.aspx>

**Preferred Name & Gender Pronouns**

Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, culture, religion, politics, sexual orientation, gender, gender variance, and nationalities. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the quarter so that I may make appropriate changes to my records. Please also note that students may choose to identify within the University community with a preferred first name that differs from their legal name and may also update their gender. The preferred first name will appear in University related systems and documents except where the use of the legal name is necessitated or required by University business or legal need. For more information and instructions on how to do so, please see the Student Preferred Name and Gender Policy at <http://policies.depaul.edu/policy/policy.aspx?pid=332>.

**Students with Disabilities**

Students seeking disability-related accommodations are required to register with DePaul’s Center for

Students with Disabilities (CSD) enabling them to access accommodations and support services to assist with their success. There are two office locations:

• Loop Campus – Lewis Center #1420 – (312) 362-8002

• Lincoln Park Campus – Student Center #370 – (773) 325-1677

Students who register with the Center for Students with Disabilities are also invited to contact Dr.

Gregory Moorhead, Director of the Center, privately to discuss how he may assist in facilitating the

accommodations to be used in a course. This is best done early in the term. The conversation will

remain confidential to the extent possible.

Please see [https://offices.depaul.edu/student-affairs/about/departments/Pages/csd.aspx](https://offices.depaul.edu/student-affairs/about/departments/Pages/csd.aspx%20) for Services

and Contact Information.

**Online Proctored Exams for Online courses**

This service will give you flexibility to schedule Exams at your convenience and take them wherever

you want as long as you adhere to the exam rules set for the test. You have to create a profile in

Examity during the first week of the term. To preview how the application works, view this link

<https://youtu.be/GPDUiC2ekLE>

* + - You must take the exam on a desktop computer or laptop (not a tablet).
    - Please note that large monitors are not allowed as they are not equipped to pan the room.
    - You must have a working built-in or external webcam and microphone.
    - Your Internet speed must be at least 3Mbps download and 3Mbps upload. Determine your
    - Internet speed by running a test at http://www.speedtest.net.
    - The proctored exams cannot be taken in a public space such as a library
    - Internet searches are not allowed during the exams
    - Interacting with someone during the exam is not allowed.

# DePaul University CNS – 380 Code of Academic Integrity

The faculty of DePaul University believes that the Code of Academic Integrity is important because of the professional, academic, and ethical requirements that align the departmental curriculum to the expectations of the occupational environment that our students will be entering. Students are expected to complete all course requirements in a way that reflect the values of the Code of Academic Integrity and encourage others to do the same. Adherence to the Code of Academic Integrity will enable students to participate gainfully in a collegiate learning environment with a high degree of professional ethics and standards, thereby empowering them to be successful after leaving DePaul University.

* Cheating and plagiarism have a zero-tolerance policy and will result in immediate failure of the course.
* Materials provided in this class should only be used in authorized settings. Under no circumstances will I use the information I learn without express consent from the appropriate authority.
* I acknowledge that the techniques, tools and links that I am exposed to are for educational purposes only and that I am aware of the legal and ethical implications on using such tools.
* **I will not engage in or condone any form of illegal or unethical activity including (but not limited to) unauthorized break-ins (or attempts to break in), cracking, denial of service attacks, un-ethical behavior or violation of privacy or copyrights laws.**
* I will not knowingly provide anyone with any of the tools provided by DePaul CDM without prior written consent from DePaul CDM
* I will not copy, backup or distribute any of the commercial software, software licenses and license keys provided by DePaul CDM
* I will not use any of the computing resources (Lab facilities, hardware and software) provided by DePaul CDM to perform any scanning, auditing, review or any other activities against systems outside the DePaul CDM lab or my personal network. I understand that my use of the computing facilities provided is strictly limited to the laboratory environment and I will **not use it outside the laboratory nor target any hosts outside the laboratory environment.**
* I hold DePaul, the instructor and DePaul CDM harmless from any claims, lawsuits (civil or criminal) and liabilities resulting, directly or indirectly, from my intentional misuse of DePaul CDM -provided tools or of the knowledge learned in this class.
* I am aware of the usage rules and I understand that the violation of this agreement may include academic sanctions as well as civil and criminal prosecution.

I attest I have read and understand the terms of the syllabus and the code of conduct and agree to adhere to the policies outlined therein and stated above.

NAME (PRINT): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ DATE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

SIGNATURE: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_