Moberly Area Community College
Common Syllabus

ITC 271: Network Monitoring & Penetration Testing

Current Term

Instructor:
Office number:
Office hours:
Response time: I typically respond to student emails within 24 hours, Monday through Friday.
Contact information:
Classroom number:
Class days and time:

Catalog Description: ITC271 Networking and Monitoring Penetration Testing (3-0-3)
This course will introduce the student to ethical hacking performed to help identify potential threats on a computer or network and how to detect and mitigate such attacks. Topics include risk management concepts, security incident response, information gathering, vulnerability assessment, penetration testing techniques to uncover security vulnerabilities and the techniques needed to identify and provide defense mechanisms against network attack, intrusion and compromise.

Prerequisite:
Prerequisite: ITC255 Cybersecurity or instructor approval.
Pre or corequisite: ITC270 Cyber Regulation and Compliance

Text(s):
Bryant, Purple Team Field Manual, 2020, Independently published
Khawaja, Kali Linux Penetration Testing Bible, 2021, Wiley
Sanders, Intrusion Detection Honeypots, 2020, Applied Network Defense
Tanner, Cybersecurity Blue Team Toolkit, 2019, Wiley
Optional / Supplemental Text – Also used in ITC255.

Other Required Materials:
Flash Drives - Use is dedicated solely to this class.
Two (2) 32 GB
One (1) 16 Gb or larger
Access to a Windows PC or Virtual Machine running Windows to complete lab assignments. MACC Labs may be used to satisfy this requirement, student owned computers are normally used. The PC must run Windows 10 and Oracle VirtualBox. You should be able to simultaneously run two Linux VMs. Generally, this implies an 2.0 GHz or faster i5 processor and 8 Gb of RAM. Your PC must support 64 bit virtualization. A Chromebook will not be satisfactory. A full discussion to clarify hardware and installation of provided software will take place the first week of class. See the course web page for additional details. Windows 10 Pro is needed, Windows 11 is untested with many applications used in this course. Windows 10 Home is unlikely to work in many instances.

Virtual Participants - 1 Set, Personal Headphones with microphone or Duet PCS Desktop Speakerphone (required) – To be discussed first class, basic speakers or headphones are acceptable for Day 1.

Cameras and Microphones: A camera will be used occasionally. A MICROPHONE IS REQUIRED for this class. Many students already own a headset and microphone used in video gaming and that often works well when connected to the PC. A low cost, basic headset with microphone is available in the MACC bookstore on your nearest campus. I have found these to be functional and inexpensive, but somewhat fragile. I also highly recommend the Phoenix Duet MT-200 or MT-202 series of speakerphones, often with cheap ear buds plugged in. You can find the Duet Speakerphone at Amazon or bhphotovideo.com and also at other online sources for about $150. The Duet is extremely reliable, simple to use and provides noise cancellation.

Software Needed: Access to software needed for this course will be provided via the course web page. Students will download and install needed software on their own computer. A complete discussion will be held the first weeks of class. Selected MACC computer labs will also have this software installed for student use.

Purpose of Course:
This course is designed to introduce tactics and methodologies used by professional network security analysts and system administrators when securing networks. A hands-on approach gives students the opportunity to actively encounter real world security breaches, vulnerabilities, and exercise systematic approaches to solving the problem. ITC271 serves a degree requirement for IT – Programming and IT – Networking AAS degrees, as such, a grade of “C” or higher will be required to complete degree requirements.

Course Objectives:
- Overview of network security
- Describe and practice Ethical Hacking procedures
- Develop procedures for handling new security issues
- Assess information systems for weakness
• Become familiar with attack techniques used in penetration testing
• Identify and implement common mitigations to attack techniques
• Intrusion Detection and Prevention systems

Course Content:
• Asset identification
• Logging, monitoring & SEIM in network management
• Host Security
• Application and network access
• Vulnerability Assessment and Attack Mitigation
• Application of Kali Linux
• Authentication and Account Management
• Intrusion Detection and Prevention systems

Connection with Career and Technical Education (CTE) Outcome Statement:
In compliance with MACC’s General Education outcomes, the student who completes this course will be able to:
• Students will demonstrate effective written and oral communication skills
• Students will demonstrate an understanding of discipline-related math and scientific principles
• Students will think critically while systematically assessing problems, identifying issues and implementing solutions
• Students will apply principles of professionalism and safety standards when entering the workforce
• Students will demonstrate skill mastery and will pursue lifelong learning in their field while adapting to changing industry standards and following evidence-based practices

Expected Study Time Commitments:
Students should expect to spend approximately 2 to 4 hours per week studying, reading, and working on assignments for each registered credit hour. For example, 6 to 12 study hours per week may be expected for a 3 credit hour class.

ASSESSMENT OF STUDENT LEARNING

Grade Scale:

A = 90-100%
B = 80-89%
C = 70-79%
D = 60-69%
F = 59 and below
A grade of “C” or higher must be achieved in all required ITC courses (prefix “ITC”) for all IT AAS degrees and certificates.

Assessment:
(State the way learning outcomes will be measured. They may be measured through, but not limited to, the following: objective and essay question, papers, quizzes, oral presentations, class participation, small group work, and/or projects.)

Description of Assignment(s)/Project(s):

INSTRUCTOR POLICIES

Tardiness:
Per instructor’s policy

Make-up and late work:
Per instructor’s policy
Extra-credit work:
Per instructor’s policy

Schedule of Student Assignments/Activities:
Instructors will identify a Student Assignment/Activities schedule. Instructors have the prerogative to construct schedule by class periods, weeks, or an overview of topics to be covered.

Other:
List any other instructor policies

COLLEGE POLICIES

Attendance:
Students are expected to attend all class sessions for which they are enrolled. The College reserves the right to drop or withdraw students from courses due to lack of attendance.

Students need to be aware that dropping/being dropped from a course and their last date of attendance in the course may impact their financial aid.

MACC faculty are required to track attendance and report lack of attendance. An instructor must complete the appropriate steps to drop a student within one week following the student’s violation of the attendance policy. Additionally, a student’s attendance rate will be calculated based upon the first day the academic session begins (not the student’s date of enrollment in the course). If a student does not attend a course as defined below, the student will be dropped as “Never Attended.”
**Term Length Drop Calculations**

16-week: Any student who misses two (2) consecutive weeks of class will be dropped from the course by the instructor unless acceptable justification is provided by the student and the student still has the opportunity to be successful in the course.

8-week: Any student who misses one (1) consecutive week of class will be dropped from the course by the instructor unless acceptable justification is provided by the student and the student still has the opportunity to be successful in the course.

4-week: Any student who misses two (2) consecutive days of class will be dropped from the course by the instructor unless acceptable justification is provided by the student and the student still has the opportunity to be successful in the course.

Intersession: Any student who misses one (1) day of class will be dropped from the course by the instructor unless acceptable justification is provided by the student and the student still has the opportunity to be successful in the course.

Acceptable justification may include, but is not limited to, family emergencies, illness or injury, college-approved co-curricular and extra-curricular activities, and religious holidays.

**Definition of Course Attendance**

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<th>Course Type</th>
<th>Description</th>
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<tr>
<td><strong>In Seat Course</strong></td>
<td>Physically attending scheduled, face-to-face, class meetings</td>
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<td><strong>Virtual Course</strong></td>
<td>Being present, via appropriate platform, for scheduled class meetings/activities</td>
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<tr>
<td><strong>Hybrid Course</strong></td>
<td>Physically attending scheduled, face-to-face, class meetings and active participation in the online portion of the course which may include any or all of the following:</td>
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<td></td>
<td>• Completion of quizzes or exams during class meetings and online</td>
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<td></td>
<td>• Submission of assignments during class meetings and online</td>
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<td></td>
<td>• Participation in discussions during class meetings and online</td>
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<tr>
<td><strong>Online Course</strong></td>
<td>Active participation in an online course includes the following:</td>
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<tr>
<td></td>
<td>• Completion of quizzes or exams</td>
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<tr>
<td></td>
<td>• Submission of assignments</td>
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<td>• Participation in threaded discussions</td>
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Simply logging into the Learning Management System (Canvas) and/or accessing the course and course related material does not constitute active participation for the online component of hybrid courses or for online courses. *(Policy Handbook, G.040)*

**Academic Dishonesty:**
MACC board policy is as follows: “Academic dishonesty by students damages institutional credibility and unfairly jeopardizes honest students; therefore, it will not be tolerated in any form.” Forms of academic dishonesty include but are not limited to the following: violations of copyright law, plagiarism, fabrication, cheating, collusion, and other academic misconduct. Incidents of dishonesty regarding assignments, examinations, classroom/laboratory activities, and/or the submission of misleading or false information to the College will be treated seriously. The procedure for handling academic dishonesty is outlined in the Student Handbook *(Policy Handbook G.020).* In cases of alleged academic dishonesty, the burden of proof is on the student, not on the instructor.

**Recording Class Sessions Using Zoom:**
The privacy of students is a priority in live or virtual meetings. Recordings of lectures or class meetings that share student information constitute an educational record and are protected under FERPA. Instructors may share recordings within the course section where they were originally recorded and only with the students enrolled in the section. Documented consent from each student identified in the recording is required to distribute outside of the course where it was originally recorded, or student identity must be redacted.

**Student Email:**
MACC Mail is the official student email system at MACC. Official college communication is sent via this email system. Students are responsible for checking their MACC Mail account regularly. Students may also receive notifications and reminders from MACC through the online learning platform. However, students should remain aware that the online learning platform messaging system and MACC Mail (student email) system are two separate systems.

**ADA Statement:**
Students who have disabilities that qualify under the Americans with Disabilities Act may register for assistance through the Office of Access and ADA Services. Students are invited to contact the Access Office to confidentially discuss disability information, academic accommodations, appropriate documentation and procedures. For more information, please call either the Moberly office at (660) 263-4100 Ext. 11240 or the Columbia office at (573) 234-1067 Ext. 12120, or visit our web page at http://www.macc.edu/index.php/services/access-office.

**Title IX Statement:**
MACC maintains a strict policy prohibiting sexual misconduct in any form, including sexual harassment, sexual discrimination, and sexual violence. All MACC employees, including faculty members, are considered mandated reporters of sexual misconduct and as such are expected
to contact the Title IX Coordinator when they become aware, in conversation or in writing, of
an incident of sexual misconduct. For more information on this policy or to learn about support
resources, please see http://www.macc.edu/sexual-misconduct-policy or contact Ms. Cheryl
Lybarger, MACC's Title IX Coordinator, at 660-263-4110, ext. 11369 or
CherylLybarger@macc.edu.