

# Course: Carroll: Networking 1

## Cyber Pathways Across Maryland SME Rubric

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This course is offered by Carroll Community College (<https://www.carrollcc.edu/Programs-and-Courses/Credit-Programs/Cybersecurity/>). This course prepares students for the CCNA certification. The goal for this review is to validate that the curriculum is complete, current, and relevant to industry cybersecurity needs. Please use the comments sections for each category to explain your overall impressions, whether positive or negative.

<b>COURSE STRUCTURE AND SYLLABUS</b>	<b>Y</b>	<b>N</b>	<b>N/A</b>
Course description is factually complete and accurate		N	
Course structure includes major lessons and assignments	Y		
Prerequisite requirements are included and appropriate	Y		
Required facilities and equipment are included and appropriate	Y		
Required course texts are listed	Y		
Appropriate supplementary materials and resources are provided	Y		
Course organization and design is clear, coherent, and appropriately structured		N	
Concepts and skills build logically, with appropriate transitions between course sections	Y		
Learning outcomes are clearly stated, measurable, and appropriate for the level of the course	Y		
Learning outcomes emphasize application of knowledge and skills	Y		

### **Comments about the course structure and syllabus:**

Summarize your impressions of the syllabus and course structure including errors, suggestions for revisions, or gaps in the curriculum in regard to industry standards and needs:

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The syllabus provides reasonable coverage for networking fundamentals, concepts and practice. I appreciate the lab content as they will help students develop industry-applicable networking skills using a wide selection of networking tools.

Here are suggestions for improving the Syllabus and course contents:

1. Fix course rubric mention of certification: The course rubric states "This course prepares students for the CCNA certification.". That is the Cisco Certified Network Associate certification. However, the course Syllabus said it prepares students for the CompTIA Network+ N10-006 certification exam. These are two different certification exams.
2. CompTIA Network+ N10-006 English was retired in on 8/31/18. It has been replaced with CompTIA Network+ N10-007. This course should reference and explore some of the new content for M10-007. See <https://certification.comptia.org/certifications/network> for more information.
3. The course syllabus is a little incomplete in comparison to CompTIA Network+ outline. There are modern concepts in networking that are more pervasive in the industry which the syllabus should consider including Cloud, Virtualization, Security Incident Response, and networking for Internet of Things (IoT).
4. Required Textbook: There is a 2018 edition (4th) of the required textbook by Lammle. You should consider recommending the new textbook which targets the now available CompTIA Network+ N10-007.

<b>LECTURE MATERIALS: INSTRUCTOR SLIDES OR AUDIO/VIDEO PRESENTATIONS</b>	Y	N	N/A
Content is accurate.	Y		
Materials accurately reflect course content.		N	
Materials are presented in a logical order.		N	
Materials reflect the major learning points and objectives for the related lesson.	Y		

**Comments about the instructor slides or video presentations:**

Summarize your impressions of the instructor slides including errors or suggestions for revisions:

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The course material consists of Microsoft Word documents only. They describe the lab activities and provide materials as a reference for some course concepts. There are no slides or video. Perhaps the instructor assumes students will own the class textbook, and no detailed notes are needed, or there may be copyright restrictions in sharing the slides for this review process. I also think it is okay if the instructor plan to provide notes in class, but it will be good to review such a document.

Additional comments for improving course materials:

1. Provide a Table of Content showing coverage for each Syllabus item. It should include a link to the specific course material for each item.
2. Adopt uniform formatting for the course materials, and remove references to non-CPAM courses. There are several materials still having labels from other classes. For example, CYBR-121 and CYBR-122 are sprinkled all over the content. The documents with the lab schedules for both courses should be removed, and a new one for the CPAM course should be made available.
3. Lesson - CIDR Conversion Table: In addition to the table, it is important to reference, or even better, show one example of how to calculate subnet masks from network CIDR and vice versa. A comprehensive description like those from the lesson on converting IP Addresses into binary will be okay.
4. Writing suggestions  
 README FIRST Document:  
 page 4: Missing image  
 page 5: remove space before the last full stop on the page.  
  
 Syllabus Document:  
 page 3: Fix sentence "Compare and contrast methods of user authentication methods."

<b>STUDENT ACTIVITIES: LABS/EXERCISES/HOMEWORK</b>			
Activities as a whole:	Y	N	N/A
<ul style="list-style-type: none"> <li>Contribute to the achievement of the stated course objectives.</li> </ul>	Y		
<ul style="list-style-type: none"> <li>Are comprehensive enough to reinforce course objectives.</li> </ul>	Y		
<ul style="list-style-type: none"> <li>Are current.</li> </ul>	Y		
Individual activities:	Y	N	N/A
<ul style="list-style-type: none"> <li>Have a clearly explained purpose and learning goals.</li> </ul>	Y		
<ul style="list-style-type: none"> <li>Promote the achievement of their stated learning goals.</li> </ul>	Y		
<ul style="list-style-type: none"> <li>Include access to all necessary resources.</li> </ul>	Y		

**Comments about student activities:**

Please summarize your impressions of the student activities including errors or suggestions for revisions:

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Although the labs are focused on Windows, they mostly provide a detailed description of the learning activities and exercises.

Suggestions for revisions:

1. Lab 32 - NSLookup.docx is having content about Ntstat and not NSLookup. You should include the material for dig/nslookup which are essential for the course. In addition, the table on page 2 is cutting off and should be formatted in a landscape.
2. The syllabus has 33 labs. However, the course has materials for 41 labs. You should consider removing labs that are irrelevant to the course content.
3. It would be nice to include references to resources for students that may be using other operating systems, such as Linux, OSX, Android, etc.

EXAMS AND ASSESSMENTS	Y	N	N/A
Assessments measure the stated learning objectives.	Y		
Assessments are consistent with module activities and resources.	Y		
Assessments are varied	Y		
Assessments are appropriate to the student work being assessed.	Y		

**Comments about exams and assessments:**

Please summarize your impressions of the assessments and any suggestions including errors or suggestions for revisions:

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The exam and assessment documents are okay. I would expect that the instructor will pull different assessment/exam questions for each CPAM class.

Suggestions for revisions:

1. Some of the lab exercises include answers (e.g., Lab 20). I would recommend their removal from the course materials unless these will be made available to the student. If those are meant for lab tutors, you may consider including them on a separate folder.
2. Final Exam Document: Consider putting directions in bold to emphasize them to students and isolate them for texts for specific questions.
3. Homework #8: Consider updating the font for some of the problems for uniformity and consistency with the other problems (e.g., questions 1, 5, 6, etc.)

4. There are two different "Homework - General Questions C.docx" documents with different content. You should consider removing or renaming one of them.

5. Some homework documents have due dates (e.g., Homework #6).

**Overall Summary:**

Based on your expertise and knowledge of the course, please write a summary of your overall impressions, the strengths of the material, and your recommendations for future iterations. Please keep in mind suggestions for revisions or gaps in the curriculum in regard to industry standards and needs. If your course is meant to prepare students for a certification exam, please indicate whether or not you feel the course will do so.

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The strongest point for the course content is the lab practice component. They will help students gain familiarity with networking tools that are well-known in the industry.

The syllabus will be more up-to-date if it covers introductory concepts about cloud computing, virtualization (e.g., software-defined networking), Internet of Things (IoT), which poses one of the most significant risks to the availability (i.e., security) of modern networks (including the Internet), and possibly the use of machine learning for defense and attack of computer networks. The exam description for the new CompTIA Network N10-007 has included a few of the above modern networking subjects.

There should be course notes or slides for each topic unless these are provided to students directly through the purchase of the course textbook.

There is a lot of room to improve the organization and completeness of the course materials. The instructor should consider creating an outline (or TOC) with links to individual course content. The syllabus is a good starting place. Such a document will help the assessment of completeness of the course material.

Once the above are addressed, the material will be much improved.