

Formal Evaluation and Subject Matter Expert Summary Report



Maine is IT!
INFORMATION TECHNOLOGY
A CONSORTIUM OF MAINE'S SEVEN COMMUNITY COLLEGES

CIS235

*Submitted to Maine is IT in fulfillment of the
TAACCCT grant requirements*

*By
Emporia State University*

EMPORIA STATE
UNIVERSITY
■ INFORMATION TECHNOLOGY

January 2017

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Course Review for: Maine is IT
Course: CIS 235 Open Source Server Administration
Reviewed by: Rob Gibson, EdD
Date: January 18, 2017

Part 1: Course Review

A. Course Review & Introduction (16 points total)		
1.1 Instructions made clear how to get started and where to find various course components.	3	1
1.2 Learners are introduced to the purpose and structure of the course.	3	3
1.3 Etiquette expectations (sometimes called “netiquette”) for online discussions, email, and other forms of communication are clearly stated.	2	0
1.4 Course and or institutional policies with which the learner is expected to comply are clearly stated, or a link to current policies is provided.	2	2
1.5 Minimum technology requirements are clearly stated and instructions for use provided.	2	2
1.6 Prerequisite knowledge in the discipline and/or any required competencies are clearly stated.	1	0
1.7 Minimum technical skills expected of the learner are clearly stated.	1	0
1.8 The self-introduction by the instructor is appropriate and is available online.	1	0
1.9 Learners are asked to introduce themselves to the class.	1	0
Total		6
Comments:		
<p>1.1: Some “Getting Started” components were included. The Reviewer would have liked to see a more thorough introduction to the course from the instructor – perhaps even a short video introduction, along with details regarding the Blackboard course shell (eg, where to locate content, description of the course navigation components, etc.) This was eluded to under Week #1, but providing this information within the course environment would be very helpful.</p> <p>1.2: The purpose and structure for the course was clearly explained in the syllabus.</p> <p>1.3: Etiquette expectations (sometimes called “netiquette”) for online discussions, email, and other forms of communication should be covered. Examples include:</p> <ul style="list-style-type: none"> • Be sensitive to the fact that there will be cultural and linguistic backgrounds, as well as different political and religious beliefs, plus just differences in general. • Use good taste when composing your responses in Discussion Forums. Swearing and profanity is also part of being sensitive to your classmates and should be avoided. Also consider that slang can be misunderstood or misinterpreted. • Don’t use all capital letters when composing your responses as this is considered “shouting” on the Internet and is regarded as impolite or aggressive. It can also be stressful on the eye when trying to read your message. • Be respectful of your others’ views and opinions. Avoid “flaming” (publicly attacking or insulting) them as this can cause hurt feelings and decrease the chances of getting all different types of points of view. • Be careful when using acronyms. If you use an acronym it is best to spell out its meaning first, then put the acronym in parentheses afterward, for example: Frequently Asked Questions (FAQs). After that you can use the acronym freely throughout your message. • Use good grammar and spelling, and avoid using text messaging shortcuts. 		

1.4: Course and institutional policies were covered in the syllabus: Attendance Policy and Academic Honesty Policy were both described. The Reviewer would have liked to see a link to both policies in the syllabus. Note: This is an online course, so the college may have different policies regarding expected activity and engagement in the course.

1.5: Technology requirements were stated in the syllabus.

1.6: Prerequisite knowledge and competencies were not covered in the materials.

1.7: Minimum skills were not covered in course materials/syllabus. The Reviewer was not able to locate that information.

1.8: In an online course it is desirable to have an instructor introduction/biography available for students to access online. A short introduction with some personal information will humanize the instructor in an online course and allow students to access the information at any time in a face-to-face course. The Reviewer only located information pertinent to the instructor's contacts.

1.9: Difficult to ascertain because no discussion forums were present in the course shell that was reviewed. The Reviewer was not able to locate anything to support that activity in the course outline.

B. Learning Objectives & Competencies (15 points total)

2.1 The course learning objectives, or course/program competencies, describe outcomes that are measurable	3	3
2.2 The module/unit learning objectives or competencies describe outcomes that are measurable and consistent with the course-level objectives or competencies.	3	2
2.3 All learning objectives and competencies are stated clearly and written from the learner's perspective.	3	3
2.4 The relationship between learning objectives or competencies and course activities is clearly stated.	3	2
2.5 The learning objectives or competencies are suited to the level of the course.	3	3
Total		13

Comments:

2.1: The course learning objectives are clearly expressed using action-oriented verbs that support measurable activities, expectations, and competencies.

2.2: The syllabus describes learning objectives using measurable language and verbs. Consider mapping these course-level learning objectives to the overall program outcomes/competencies. Those would be the outcomes required for accreditation.

2.3: The course learning objectives clearly state what the learner is to accomplish by the end of the course. The Reviewer considers these to be well written.

2.4: The Reviewer noted an association between learning objectives and the course outline using a Roman Numeral taxonomy. The Reviewer recommends strengthening this association/crosswalk using more robust language to define the linkage between objectives and activities.

2.5: This assumed to be accurate. The course activities appear to support this requirement.

C. Assessment & Measurement (13 points total)

3.1 The assessments measure the stated learning objectives or competencies.	3	3
3.2 The course grading policy is stated clearly.	3	3
3.3 Specific and descriptive criteria are provided for the evaluation of learners' work and are tied to the course grading policy.	3	3
3.4 The assessment instruments selected are sequenced, varied, and suited to the learner work being assessed.	2	2
3.5 The course provides learners with multiple opportunities to track their learning progress.	2	1
Total		12

Comments:

3.1: Difficult to ascertain from the syllabus and Blackboard content. There are several exams and quizzes embedded throughout that appear to measure the stated learning objectives, but the Reviewer did not see the exams themselves.

3.2: The grading policy/rubric is stated in the syllabus.

3.3: The criteria are descriptive and aligned with the grading policy.

3.4: The assignments are varied and aligned with the objectives for each week. The instructor has provided a variety of activities, including quizzes and exams, assignments, discussions, and videos. The Reviewer applauds the use of the "Activities at a Glance" within each module. In addition, the assignment details and directions are very thorough. The only thing that might help here are possible addition of short screen capture videos – developed by the instructor – which illustrate some of the processes.

3.5: Reviewer couldn't locate any evidence of tracking learning progress. (e.g., Circle back activities, mastery learning pathways, etc.) However, course activities appear to build on one another - providing scaffolding.

D. Instructional Materials (13 points total)

4.1 The instructional materials contribute to the achievement of the stated course and module/unit learning objectives or competencies.	3	3
4.2 Both the purpose of instructional materials and how the materials are to be used for learning activities are clearly explained.	3	3
4.3 All instructional materials used in the course are appropriately cited.	2	2
4.4 The instructional materials are current.	2	2
4.5 A variety of instructional materials is used in the course.	2	2
4.6 The distinction between required and optional materials is clearly explained.	1	1
	Total	13

Comments:

4.1: The instructional materials aligns with the course and unit objectives stated in the syllabus. There is a text and a variety of online resources made available.

4.2: The purpose of the instructional materials in the course is explained and aligns with each unit assignment.

4.3: The instructional materials were properly cited.

4.4: The instructional materials are current.

4.5: The instructional materials by unit and assignment.

4.6: Optional materials are not part of this course.

E. Course Activities and Learner Interaction (11 points total)

5.1 The learning activities promote the achievement of the stated learning objectives or competencies.	3	3
5.2 Learning activities provide opportunities for interaction that support active learning.	3	3
5.3 The instructor's plan for classroom response time and feedback on assignments is clearly stated.	3	0
5.4 The requirements for learner interaction are clearly stated.	2	2
<i>Total</i>		8

Comments:

5.1: The learning activities directly support the course/unit learning objectives.

5.2: There are opportunities for interactive learning. This is an applied course with opportunities to develop 3D models and prototypes.

5.3: A plan for feedback is not specified.

5.4: Requirements for expected learner interaction is specified and detailed. The Reviewer applauds the course designer for including those expectations.

F. Course Technology (10 points total)

6.1 The tools used in the course support the learning objectives and competencies.	3	3
6.2 Course tools promote learner engagement and active learning.	3	3
6.3 Technologies required in the course are readily obtainable.	2	2
6.4 The course technologies are current.	1	1
6.5 Links are provided to privacy policies for all external tools required in the course.	1	0
Total		9

Comments:

6.1: The tools in the course support the unit/weekly objectives. The assignments clearly state what tools/applications are needed to successfully complete the work.

6.2: The tools promote engagement and active learning. The assignments promote active student engagement by requiring interaction with the technology to build content for assignments.

6.3: The tools will mostly be provided by the college and through independent [free] resources.

6.4: The course technologies are current and up-to-date for the required work.

6.5: Certain policies (eg, ADA, Codes of Conduct, etc.) are provided via extracted policy wording. However, the Reviewer was unable to locate links to privacy policies (eg, HIPAA, FERPA, etc.) Consider including that language in the course syllabus.

G. Learner Support (9 points total)

7.1 The course instructions articulate or link to a clear description of the technical support offered and how to obtain it.	3	0
7.2 Course instructions articulate or link to the institution's accessibility policies and services.	3	2
7.3 Course instructions articulate or link to an explanation of how the institution's academic support services and resources can help learners succeed in the course and how learners can obtain them.	2	0
7.4 Course instructions articulate or link to an explanation of how the institution's student support services and resources can help learners succeed in the course and how learners can obtain them.	1	0
Total		2

Comments:

7.1: Providing students access to technology support is very important. Don't assume that students know how to obtain support from the institution. Provide instructions/links for students to access the technology help services available to them.

7.2: The syllabus contains an excerpt from the institution website pertaining to accessibility. Consider providing a link to the site or instructions for students to access the services. Currently, a link placeholder is provided.

7.3: Access to the institutional academic support services is critical. Consider providing instructions/links to tutoring and other academic support services.

7.4: As with academic support, student wellness and support is also critical. Consider providing instructions/links to the institutional student support services. These might include tutoring services, the Writing Center, etc.

H. Accessibility and Usability (12 points total)

8.1 Course navigation facilitates ease of use.	3	3
8.2 Information is provided about the accessibility of all technologies required in the course.	3	2
8.3 The course provides alternative means of access to course materials in formats that meet the needs of diverse learners.	2	2
8.4 The course design facilitates readability.	2	2
8.5 Course multimedia facilitate ease of use.	2	2
Total		11

Comments:

8.1: The course is laid out relatively well with a very minimalistic design approach. Consider adding discussion directly into Modules so that they are contextualized; then hide the discussion sidebar. The same applies for quizzes and other course content.

8.2: This is well described throughout.

8.3: Consider multiple delivery systems for course materials. The Americans with Disabilities Act requires institutions to make accommodations for student who identify as having a disability. Work closely with your institution's office for disability services to identify resources to assist in making your course ADA compliant. The Reviewer assumes this has been considered. Microsoft software includes an Accessibility Checker. Certain learning Management Systems also include accessibility checkers.

8.4: Consider processing this course through an ADA checker. Webaim is one such option.
<http://wave.webaim.org>

8.5: There are videos required for this course. Ensure they are easy accessed and include either 1) captioning or 2) a transcript.

Part II: Employment Data

Stakeholder Involvement and Employment Opportunities

Items Reviewed include:

- Internships, Job Shadowing Opportunities that exist with the outcomes and objectives with this course.
- Employment opportunities for these skills.
- Outcomes/Objectives are current and relate to job market.

Findings include:

- See Subject Matter Expert review for specific feedback relative to this finding.

Part III: Creative Commons

Items Reviewed include:

- All course materials presented in Creative Commons?
- Creative Common license (including graphic) is represented on course materials.

Findings include:

- This material is licensed under the Creative Commons Attribution 4.0 International License.
- Creative Commons graphic is included on the footer.

Part IV: Subject Matter Expert (SME) Findings & Review

Course: CIS 235
Course Name: Open Source Server Administration
Date: January 18, 2017

Background

Funded by a \$13 million grant from the U.S. Department of Labor, *Maine is IT!* is building new educational and career pathways in information technology at all seven of Maine's community colleges. The programs funded by the grant are designed to support Maine workers eligible for the Trade Adjustment Assistance (TAA) program, un/underemployed adults, and workforce needs in Maine's growing IT sector. They have been built to serve individuals with a range of experience, from those interested in gaining basic IT skills to IT professionals looking to advance their careers through new industry certifications.

Overall Remarks and Reviewer Summary

In reviewing CIS 235 several processes and data collections tools were noted and identified. This reviewer took into account the Dynamic Skills Audit conducted in 2014-2015. Both qualitative and quantitative data was identified in the report that provides the key elements:

1. Career opportunities do exist in York County for graduates from an AAS in Information Technology or those completing a certificate program. It was also found by this reviewer that the skills mastered in CIS 235 relate to specific job openings.
2. Current job openings list specific duties that relate to CIS 235.
3. The current Advisory Board indicates CIS 235 contributes to the labor market data.

The Dynamic Skills Audit outlined the following process, which this reviewer took into consideration when compiling this the formal SME report:

1. Local industry needs were assessed through the program Advisory Board. Minutes from those Advisory Board meetings were reviewed and suggestions from the partnerships were adopted into this summary.
2. Burning Glass data was reviewed to identify themes and trends in the current job market. The Burning Glass report helped identify skills demanded by employers to curriculum outcomes and learning objectives.

A formal SME was conducted with the above reports and compiled in the next section of this report.

A. Program and Course Overview and Objectives

Items Reviewed include:

- Dynamic Skills Audit Summary Report (Academic Years 2014-2015)
- Burning Glass Labor Market Data reports (Compilation)
- Advisory Board Minutes

Findings include:

The CIS 235 course learning outcomes and objectives align with the program mission and goals. This reviewer found that the CIS 235 course has listed measurable outcomes which can be stacked and latticed. The industry sector for CIS 235 has been categorized as: *541512 Computer Systems Design Services*. (See: https://www.census.gov/svsd/www/services/sas/sas_summary/54summary.htm#sectordescription)

Those completing this course would enter the Bureau of Labor Statistics occupation classification of *SOC:15-1142 Network and Computer Systems Administrators*. (See: <https://www.bls.gov/soc/2010/soc151142.htm>). The reviewer finds that this classification is correct. The job outlook for this classification is considered very strong: <https://www.bls.gov/ooh/computer-and-information-technology/network-and-computer-systems-administrators.htm#tab-6>.

The NCES CIP (Classification of Instructional Programs) is referenced as: *11.1001: Network and System Administration*. (See: <https://nces.ed.gov/ipeds/cipcode/cipdetail.aspx?y=55&cipid=87261>) This is also an accurate classification.

This course was designed for 1st year community college level students or equivalent. This reviewer found that there are no prerequisites for this course.

Course objectives include:

1. Discuss the setup considerations and process of installing the Linux operating system with emphasis on setting it up for usage as a server. (IV)
2. Describe the purpose and use of shell programs and commonly used Linux commands and discuss the options for automating common tasks and processes using shell scripts and scheduled tasks. (I, III)
3. Discuss various techniques for hardening a Linux installation against intrusion, including firewall configuration, management of system services and startup options, and the use of other system tools. (IV, VII)
4. Discuss the importance of encryption, strong passwords, packet filtering, TCP wrappers, mandatory access controls, and other methods for preventing unauthorized access. (VII)
5. Demonstrate the ability to perform daily system management tasks, such as creating and managing user accounts, monitoring system logs, applying system updates, and performing backups of critical data. (IV-V)
6. Demonstrate the use of one of the commonly available text editors on Unix-based systems, such as vi or emacs. (I)
7. Demonstrate the use of common commands to manipulate files and system options. (I)
8. Explain how to modify the Linux settings using text-based configuration files. (I, IV, VI)
9. Explain how to find and use resources such as HOWTO documents, man pages, info pages, and websites. (IV)

Table: Standard Reviewed Standards for Course Outcomes

Standard Reviewed	N/A	Satisfactory	Not Satisfactory
A.1 The learning outcomes are clearly stated and mapped to specific objectives and/or assignments.		X	
A.2 Prerequisites and/or any required competencies are clearly stated.			X
A.3 Learning objectives for each course describe outcomes that are measurable.		X	
A.4 Learning objectives are appropriately designed for the level of each of the course.		X	
A.5 Instruction, activities, and assignments in courses are scaffolded from course to course, and throughout the program.		X	

A.1 – CIS 235 articulates specific learning outcomes. **

A.2 - The course prerequisites are indicated.

A.3 - Course objectives are measurable and well described.

A.4 - Learning objectives are aligned to industry standards.

A.5 – Activities are scaffolded and appear to build on one another.

****Reviewer Note:** While the course outcomes are clearly stated and contain very specific measurable measures, it would also be recommended to include the program mission or goals in the course syllabus for clear assessment measuring. A deeper assessment could possibly be conducted that would match the course learning outcomes to specific program outcomes (or certificate). This would illustrate a direct impact on student learning.

B. Relevancy

Items Reviewed include:

- Dynamic Skills Audit Summary Report (Academic Years 2014-2015)
- Burning Glass Labor Market Data reports (Compilation)
- Advisory Board Minutes

Findings include:

Course competencies are relevant to students, industry, and employers. Strong evidence was found in the Dynamic Skills Audit Summary Report. Direct ties were found through interviews with stakeholders and in Advisory Board minutes.

The table that follows is a clear matrix of how the course outcomes are relevant to students, industry, and employers:

Table: Matrix of evidence-based skills mapped to students, industry, and employers

Standard Reviewed	N/A	Satisfactory	Not Satisfactory
B.1 Course competencies represent industry's expectation of the overarching knowledge, skills, and abilities that 1 st year college students should possess.		X	
B.2 Core course competencies are relevant to industry and employers.		X	
B.3 Instruction, activities, and assignment in individual courses are relevant and engaging to students.		X	

B.1 - Yes. The specific course objectives clearly represent industry expectations and also are current and relevant. Linux is used in a variety of areas and is even the operating system used on Raspberry Pi computers.

B.2 - Yes. Core competencies are relevant to industry and employers and evidence of this was verified using the Burning Glass labor market data relative to STEM occupations (<http://burning-glass.com/research/stem/>) and the Dynamic Skills Audit Summary. This Reviewer took the interview summaries from Advisory Board members, current job openings and descriptions and matched them directly to all ten of the listed course objectives.

B.3 – Yes. Activities and instruction defined in the course outline offer real-world application in design and modeling that are required of any person seeking employment in this field.

C. Resources & Materials

Items Reviewed include:

- Dynamic Skills Audit Summary Report (Academic Years 2014-2015)
- Burning Glass Labor Market Data reports (Compilation)
- Advisory Board Minutes

Findings include:

Instructional materials being delivered achieve stated course objectives and learning outcomes. A formal course review was conducted that address more specifically course content and instructional design processes. However, in this SME report, specific findings in this section relate specifically to the overall instructional materials which contribute to the ten specific course outcomes.

Table: Instructional materials and their direct link to course outcomes

Standard Reviewed	N/A	Satisfactory	Not Satisfactory
C.1 The instructional materials contribute to the achievement of the stated course learning objectives.		X	
C.2 The purpose of the instructional materials is clearly explained.		X	
C.3 The instructional materials present a variety of perspectives and approaches on the		X	
C.4 The instructional materials are appropriately designed for the level of the course.		X	

C.1 - Yes. The course materials contribute to the achievement of the stated learning objectives, although the alignment can and should be strengthened.

C.2 - Yes. The purpose of the instructional materials was clearly explained.

C.3 - Yes. A variety of projects were identified. The reviewer recommends small group projects to satisfy particular learning outcomes.

C.4 - Yes. The rigor matches 1st year college entry students. Reviewer also noted the rigor would be acceptable for all students from all demographics.

D. Assessment & Measurement

Items Reviewed include:

- Dynamic Skills Audit Summary Report (Academic Years 2014-2015)
- Burning Glass Labor Market Data reports (Compilation)
- Advisory Board Minutes

Standard Reviewed	N/A	Satisfactory	Not Satisfactory
D.1 The course evaluation/criteria/course grading policy is stated clearly on each syllabus.		X	
D.2 Course-level assessments (those that can be delivered) measure the stated learning objectives and are consistent with course activities and resources.		X	
D.3 Specific and descriptive criteria are provided for the evaluation of students' work and participation and are tied to the course grading policy.			X
D.4 The assessment instruments (that can be delivered) are sequenced, varied, and appropriate to the content being assessed.		X	

Findings include:

Assessment strategies use established ways to measure effective learning, evaluate student progress by reference to stated learning objectives, and are designed to be integral to the learning process. The Reviewer compared and contrasted the nine learning outcomes listed for CIS 235 to affect best practices in assessing student learning. Those items have been identified and listed in the table below.

Table: Measurement of effective learning

D.1 - Yes. Grading is broken into several components and provides opportunity for a variety of course activities, including presentations. The Reviewer applauds this variety in grading.

D.2 - Yes. This is somewhat implied. The assessments (exams and quizzes) appear to align with stated course-level objectives. This can be strengthened through describing this alignment.

D.3 - This Reviewer did not find any specific or descriptive criteria that was provided for the evaluation of student work. As mentioned previously, this could be solved with a simple outline listing each assignment, the due date, total points possible, and a grading rubric. In order to encourage students, especially in this particular field, it would be best practice to list assignments and due dates early so students are prepared for their learning.

D.4 - This Reviewer found sequenced and varied grading strategies, including presentations, assignments, and a final project. This Reviewer encourages this variety.