Formal Evaluation and Subject Matter Expert Summary Report

WEB215

Submitted to Maine is IT in fulfillment of the TAACCCT grant requirements
By
Emporia State University

EMPORIA STATE UNIVERSITY
INFORMATION TECHNOLOGY

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Course Review for: Maine is IT
Course: YCCC: WEB215 - Web Systems & Programming
Reviewed by: Joseph Kern
Date: 1/4/17

EMPORIA STATE UNIVERSITY
INFORMATION TECHNOLOGY

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	**0**
1.2 Learners are introduced to the purpose and structure of the course.	3	**2**
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	**0**
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	**4**	

Comments:

1.1: No instructions are provided in the syllabus or through introductory course materials to guide students through the course. As Blackboard may be set up differently by individual instructors, students are helped by being introduced to each course's navigational flow and where to click for important resources. Also, if a downloadable syllabus is included, a direct hyperlink from it to the course also aids navigation.

1.2: The purpose of the course is clearly and succinctly stated in the syllabus. The weekly breakdown of class topics and activities clearly conveys the course structure. However, **the list of weekly activities in the syllabus does not align with the course materials.** The Table of Contents document and weekly Blackboard folders align with each other but do not match the syllabus's schedule. To further confuse the course structure, a downloadable syllabus file is included, but it is from the WEB131 course, which has similar content, and may be mistaken for a 3rd conflicting course structure. Some file updating should be done to address these alignment issues.

1.3: A recommendation for all courses is to establish an informal discussion board for students to ask/answer each other's questions. Etiquette expectations (sometimes called "netiquette") for online discussions, email, and other forms of communication should be covered. *Examples include:*

- Be sensitive to the fact that there will be cultural and linguistic backgrounds, as well as different political and religious beliefs, plus other 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: Many policies, including absences, academic dishonesty, and late work are covered. If additional college-wide information is available, consider adding links to the campus policies.

1.5: The WEB250 syllabus does not include a section on technology requirements. As an example of what this could look like is found in the mistakenly-added WEB131 syllabus, where recommendations for software are made, along with descriptions of their functions within the course. Providing hyperlinks to software download websites is also helpful.

1.6 : The syllabus lists one prerequisite course, but does not list the initial competencies necessary for initial success in the course. The required textbook (https://www.pearsonelt.ch/Informatik/SamsPublishing/EAN/9780735710900/Python-Web-Programming) states that it "*is intended for programmers who have experience with other programming languages (such a C or C++) and has some experience with building web-based systems. It is for the serious programmer who does not want a basic introductory to the language.*"

1.7: Minimal skills for students entering the course are not listed.

1.8: No introduction to humanize the instructor is given.

1.9: Students are not asked to introduce themselves.

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	**0**
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	**1**
2.5 The learning objectives or competencies are suited to the level of the course.	3	**3**
Total	**10**	

Comments:

2.1: The course learning objectives are measurable.

2.2: No weekly or unit learning objectives or competencies are provided. What students will learn each week is not made clear to them.

2.3 : Learning objectives and competencies are clearly stated from a student perspective.

2.4: While activities do address outcomes, there no information to directly link them. While a student in Week 5 may realize on their own that they are learning Objective #4, this is not stated anywhere. And if students reviewing the course realize that they don't understand Objective #7, there is no guidance to help them find the appropriate course content to study. It is recommended that: 1) Course objectives reference the week(s) in which they are addressed, to help students find resources; and/or 2) Relevant objectives are listed within each weekly set of materials, so students understand what they are expected to learn in each unit. With the detail provided in the current course outcomes, these could easily serve as the unit-level objectives. New course outcomes could be written more broadly to address the course's major topics, bridging the gap between the detailed unit objectives and the Course Description.

2.5: Objectives are suited to the level of this introductory course.

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	**2**
Total	**13**	

Comments:

3.1: The homework assignments and quizzes are consistent with the learning objectives.

3.2: Course grading policy is clear and succinct.

3.3: Grading criteria for most assignments is based on simple correct/incorrect answers, or whether a specific task has been performed completely, which is appropriate for the content and the objectives.

3.4: Assignments are sequenced to follow the chapters of the course textbook and are varied to fit each unique web programming objective.

3.5: There are homework assignments each week, along with bi-weekly quizzes. These provide many opportunities for students to gauge understanding.

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: Instructional materials align to objectives and activities.

4.2: The syllabus states that students will read the required textbook (https://www.pearsonelt.ch/Informatik/SamsPublishing/EAN/9780735710900/Python-Web-Programming) each week to learn content and prepare for chapter quizzes. Most instructor-provided materials are self-explanatory sets of programming instructions to guide activities.

4.3: The textbook is sited in the syllabus by title, author, and ISBN. The instructor-contributed materials are not cited to the instructor but include adequate Creative Commons licensing instead.

4.4: The textbook was published in 2002, so it is older, but still appropriate for learning/teaching Python programming.

4.5: The inclusion of instructor-provided material provides some variety. Multimedia resources are also provided in at least one section.

4.6: No distinction between required and optional materials is given, although there do not seem to be any optional activities. If extra activities exist from the textbook or other resources, these could be listed as extension activities for further student practice.

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	**2**
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	**0**
Total	**5**	

Comments:
5.1: Activities apply a hands-on approach to achieve the objectives.
5.2: It is not evident that learners are interacting interpersonally with each other, but they will engage with the software applications for hands-on active learning.
5.3: No plan is provided for classroom response time or assignment feedback.
5.4: No requirements are listed for learner interaction.

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 programming tools used support the objectives.

6.2: Based on course activity descriptions, course tools do promote learner engagement and active learning.

6.3: The course can be supported by common programming tools. No specific, hard-to-find tools are indicated in the course materials.

6.4: Course technologies are current for the programming applications conducted.

6.5: No links are provided in the syllabus. A review of the agreement for each application required in the course will insure that student data required for the use of the software is secure. Linking to the agreements will allow students to easily access the policies.

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: No technical support information is provided in the syllabus. The only support listed in the Blackboard course is a side-menu link to Blackboard Help. It is recommended that multiple channels of tech support communication be listed in the syllabus and the course introduction to ensure that no student is put behind due to technical difficulties.

7.2: An accommodations statement is made, along with a statement directing any student with special needs to contact the correct YCCC office. To more adequately serve students the syllabus should include contact information for this office, along with a link to their webpage.

7.3: No academic resources are listed. If tutoring, advising, or other student services are available to support academic success, these should be listed along with links or contact information.

7.4: No student support services or resources are listed. If there are services to support student life resources, such as counseling or student wellness, these should be listed along with links or contact information. There is usually a statement made regarding how students can seek help if they feel discriminated against.

H. Accessibility and Usability (12 points total)

8.1 Course navigation facilitates ease of use.	3	**1**
8.2 Information is provided about the accessibility of all technologies required in the course.	3	**0**
8.3 The course provides alternative means of access to course materials in formats that meet the needs of diverse learners.	2	**0**
8.4 The course design facilitates readability.	2	**2**
8.5 Course multimedia facilitate ease of use.	2	**1**
Total	**4**	

Comments:

8.1: While course navigation requires only 2 clicks to access each week's material, it would also be helpful if each weekly folder was titled with the topics included, rather than the week number.

The big hurdle to this course's navigation is the need to download every single content item as a Word document instead of simply seeing it as a page within Blackboard. It is EXTREMELY tedious to access multiple content pages in one sitting. If a student is searching for a particular bit of code within a document but is not sure which document to open, he/she may be deterred by the need to repeatedly navigate, download, open, close, and re-navigate until the right one is found. It is strongly recommended that **content be copied from these Word documents into HTML pages in Blackboard** to aid navigation. If students benefit from being able to download the files, providing a download link on the content page, as was done for the course syllabus, would allow content to be more easily viewed by students, while still allowing them a way to download the file.

8.2: Information regarding the accessibility of technology used is not included. This would include instructions on how to obtain and install any programs used.
8.3: No accommodations for providing content to students with disabilities was evident. In addition to varying the modality of content through text, audio, and video instruction, 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. When using a video, a transcript file or the selection of videos that are captioned is required as an effective means of communication.
8.4: Documents included in the course followed standard text formatting, with not extra colors or other characteristics that could cause problems for visibility. Check with your office of disability services before changing the appearance of your course.
8.5: When possible, embedding multimedia within the course LMS ensures ease of access and limits student issues that may arise when leaving the LMS to access outside resources. As all materials required students to open Word, and from there, access any multimedia (YouTube, etc.) the usability of these features is too removed from the core of the course.

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.
• See Subject Matter Expert review for specific feedback.

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: All course content provided for review includes Creative Commons license information and the corresponding CC graphic.

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

Course: YCCC: WEB215
Course Name: Web Systems & Programming
Reviewed by: Joseph Kern
Date: January 4, 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 WEB215 several processes and data collections tools were noted and identified. This reviewer took in 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. Entry-level career opportunities were found within 35 miles of YCCC for graduates from an AAS in Information Technology or those completing a certificate program.
2. Current job openings list specific duties that relate the Web Systems & Programming course, WEB215.

There are several current job openings available for entry-level web developers (as of 1/4/17) within a 35-mile radius of YCCC. A Web Developer is being sought by Houghton Mifflin Harcourt in Portsmouth, NH. The job duties include several functions explicitly linked to the WEB215 course:

- *Creating and maintaining databases, tables, and indexes*
- *Writing complex T-SQL*
- *Working knowledge of CSS*

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 WEB215 course learning outcomes and objectives align with the program mission and goals. This reviewer found that the WEB215 course has listed measurable outcomes which can be stacked with other coursework. The industry sector for WEB215 has been categorized as: *541519 Other computer related services*. (See: https://www.census.gov/svsd/www/services/sas/sas_summary/54summary.htm#sectordescription) The reviewer finds that this classification is correct.
- Those completing this course would enter the Bureau of Labor Statistics occupation classification of *SOC:15-1134, Web Developers*. (See: http://www.bls.gov/soc/2010/soc150000.htm#15-1100)
- The NCES CIP (Classification of Instructional Programs) is referenced as: *11: Computer and Information Sciences and Support Services*. (See: http://nces.ed.gov/ipeds/cipcode/cipdetail.aspx?y=55&cip=11) This is also an accurate classification.
- This course was designed for 1st-2nd year community college students or equivalent. CIS133, *Introduction to Programming*.

Listed course objectives include:

1. Describe multiple ways to organize and present information on a web site via HTML.
2. Apply various, modern, markup languages to create and validate documents.
3. Use Cascading Style Sheets (CSS) to create style standards for a web site.
4. Describe how the HTTP protocol manages connections between clients and servers.
5. Describe the technologies used in distributed enterprise web applications.
6. Compare and contrast graphic media file format characteristics such as color depth, compression and codecs.
7. Explain how cookies are used to maintain the state of a web session.
8. Describe the potential threats to user privacy posed by some types of cookies.
9. Contrast data entry and validation techniques in clientside vs. serverside programming.
10. Apply accepted programming standards to ensure that user input on web pages does not affect server-side processes.
11. Contrast clientside with serverside security issues.
12. Describe ways to increase the trustworthiness and security of web sites using digital certificates and public key encryption.
13. Learn SQL and develop basic query to retrieve records from database.
14. Describe the use of serverside backend databases in web sites and applications.
15. Construct a web application to include clientside programming, serverside programming, and a backend database.

- No concise, over-arching course outcome is given to explain the purpose of these objectives within the program.

The content of these course objectives aligns with the topics listed in the course syllabus, the required textbook, and the listed certification exam. This alignment also correlates to items found within the Dynamic Skills Audit and Burning Glass baseline skills as listed in the labor market data.

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– Course-level objectives are clearly stated but are not adequately mapped to specific weekly activities. The syllabus would be improved by splitting the long list of objectives among their corresponding weeks and providing a shorter, broader set of outcomes describing the purpose of this course in students' career-development program.
A.2 – A prerequisite course is listed, but the required prior skills and knowledge are not stated.
A.3 - Course objectives are measurable.
A.4 - Learning objectives are appropriate for the level of course.
A.5 – Activities appear to be scaffolded through the course. Computer Science skills mastered in previous courses serve as prerequisites to this course, and its outcomes can support additional courses. The course's objectives fill an industry need within the program.

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 2nd year college students should possess.		X	
B.2 Core course competencies are relevant to **industry and employer**s.		X	
B.3 Instruction, activities, and assignment in individual courses are relevant and engaging to **students**.		X	

B.1 - Course objectives align with industry expectations at the appropriate skill level, based on employee responsibilities found in current job postings.
B.2- Core competencies are relevant to industry and employers, as verified using the Burning Glass labor market data http://burning-glass.com/five-careers-where-coding-skills-will-help-you-get-ahead/) and the Dynamic Skills Audit Summary. Student learning objectives align with the competencies expected of employees in network support fields and those listed by the Advisory Board.
B.3 - Activities and instruction defined in the course outline offer real-world application in web development that are beneficial to students 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:
Textbook contents and instructor-provided resources aligned with course objectives.

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 course content.		X	
C.4 The instructional materials are appropriately designed for the level of the course.		X	

C.1 – The topics covered with the course materials clearly align with course learning objectives.
C.2 – Materials were explicitly connected to activities that supported the course outcomes.
C.3 – Course competencies include a variety of web development tools and applications, varying the types of course activities. Hands-on activities were mixed with quizzes over content and procedures.
C.4 – As the materials align with appropriate course outcomes, they are a good fit for the level of course.

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

Findings include:

A variety of formative assessments are used throughout the course.

Table: Measurement of effective learning

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	

D.1 – The grading policy is clearly stated.
D.2 – The assessments adequately assess the learning objectives at multiple cognitive levels and are consistent with course activities.
D.3 – Guidelines in the syllabus explain the need for attendance and participation in course assignments. Most programming outcomes are right/wrong, reducing the need for complicated rubrics to define scoring criteria.
D.4 – The sequence of the assignments is clear, as they follow the progression of the course to build toward its outcomes. The variety of assessments is adequate, as assignments provided for review cover a range of content-focused activities, each in unique ways appropriate for the knowledge and skills being assessed.