

In this issue:

- 4. "BILT for Success": An Alternative Education Strategy to Reskill the Business and Technology Professionals for a Sustainable Future**
Xiang Michelle Liu, Marymount University
Diane Murphy, Marymount University
- 15. Using Student Choice in Assignments to Create a Learner-Centered Environment for Online Courses**
Jamie Pinchot, Robert Morris University
Karen Paullet, Robert Morris University
- 25. Plugin-based Tool for Teaching Secure Mobile Application Development**
A B M Kamrul Riad, Kennesaw State University
Md Saiful Islam, Kennesaw State University
Hossain Shahriar, Kennesaw State University
Chi Zhang, Kennesaw State University
Maria Valero, Kennesaw State University
Sweta Sneha, Kennesaw State University
Sheikh Ahamed, Marquette University
- 35. Building a Cybersecurity Apprenticeship Program: Early-Stage Success and Some Lessons Learned**
Geoff Stoker, University of North Carolina Wilmington
Ulku Clark, University of North Carolina Wilmington
Manoj Vanajakumari, University of North Carolina Wilmington
William Wetherill, University of North Carolina Wilmington
- 45. Effects of Teaching and Practice of Time Management Skills on Academic Performance in Computer Information Systems Courses**
Sean Humpherys, West Texas A&M University
Ibrahim Lazrig, West Texas A&M University
- 52. Development of a Flexible Point-based Tenure and Promotion Document in the Age of Societal Uncertainty**
Kevin Dickson, Southeast Missouri State University
Nick Johnston, Southeast Missouri State University
Heather McMillian, Southeast Missouri State University
Dana Schwieger, Southeast Missouri State University

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Using Student Choice in Assignments to Create a Learner-Centered Environment for Online Courses

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Abstract

Learner-centered approaches have been found to be effective in online courses for encouraging a deep understanding of course content and for encouraging student engagement. Instructors of two information systems courses revised their online teaching methods to incorporate student choice in assignments. All assignments except a weekly quiz were made optional, and more assignments were provided than were necessary to obtain an A in the course. A variety of assignment types that would appeal to different learning styles were incorporated, allowing students the flexibility to choose assignments that most appealed to them. Findings show that students completed a range of assignment types, with 47% of students completing more assignments than were necessary to earn an A grade. Student reviews were extremely positive about the choice in assignments and noted that the flexibility gave them more control over their learning.

Keywords: assessment, alternative grading methods, cafeteria-style grading, online education, student engagement

1. INTRODUCTION

Creating a course format that allows for student choice in assignments can provide opportunities for creating a more learner-centered classroom. In a traditional course, there might be several required assignments, quizzes, or tests. Allowing student choice in assignments, sometimes referred to as cafeteria-style grading (Arendt et al., 2014), replaces each traditionally required assignment with a set of assignments that address the same course objective as the original assignment, but may offer different approaches to the material that could appeal to students with different interests and learning styles.

Individual learning styles should be taken into account in online education (Zapalska & Brozik, 2007). Learning styles are often categorized using the VARK model which includes: visual (V), aural (A), reading/writing (R), and kinesthetic (K). Individuals often tend to learn more effectively using their chosen learning style. Visual learners like to be provided demonstrations and images and like to use lists to organize their thoughts. Aural learners learn by listening and enjoy discussions and working out problems by talking. Read/write learners like to read content and often take notes and draw things to help remember them. Kinesthetic learners learn by doing and like hands-on tasks and tactile experiences (Drago & Wagner, 2004).

To implement learning styles, assignments could incorporate a variety of elements from reading, writing, oral presentation skills, discussion, hands-on demonstration of a skill, use of Internet search skills, and creation of videos and podcasts. Media such as videos and podcasts can be incorporated as appropriate. In some courses, it might be appropriate to allow students to conduct an interview about the lesson's topic with someone they know who has experience with the area that is the focus of the lesson. Many science and technology courses could offer a practical lab assignment that allows students experience with the lesson in a hands-on approach. Instructors could also consider offering assignments that use an element of gamification.

Gamification involves "using game-based mechanics, aesthetics, and game thinking to engage people, motivate action, promote learning, and solve problems" (Kapp, 2012, p. 10). Opportunities abound for instructors to include assignment options that include some element of game play. Kahoot (Kahoot, n.d.) is a web site where instructors can create learning games and tutorials, or allow students to create these items. Possible assignments could include completion of a trivia game or interactive tutorial that reviews concepts on a certain topic, or asking the student to create a review game or tutorial. Templates can also be found online that allow creation of interactive crossword puzzles and other games that mimic television game shows such as *Jeopardy*, *Are you Smarter than a Fifth Grader?*, and *Wheel of Fortune* (Rusnak Creative, n.d.).

This study seeks to explore the potential benefits for students in courses that allow student choice in assignments, with the aim of appealing to a variety of student learning styles and thus increasing student engagement in online courses.

2. RELATED WORK

Arendt et al. (2014) studied 412 students in both traditional and online courses using this method of course structure and found that allowing students a choice in assignments encouraged them to excel in the course and go beyond expectations by submitting more assignments than were necessary to complete. In their sample, 49 percent achieved an A grade. Further, of these students who achieved an A, 37 percent scored beyond an A by completing additional assignments. The majority of these students completed one or two additional

assignments, but 1 percent completed 16 or 17 additional assignments. Of the 412 students, only 14 percent received a grade of D or lower. Some students completed a greater variety of assignments than others, but the majority of students completed all online quizzes and exams. The researchers received positive feedback from students in course evaluations, with open ended comments noting enthusiasm and appreciation for the variety and choice in assignments. Arendt et al. (2014) found that this course structure has been equally successful in both traditional and online courses. Their findings indicated that giving students the freedom to learn in different ways encouraged learning in any form. This resulted in an increased desire from the student to learn and an increase in satisfied learning objectives.

Haniewicz et al. (2017) analyzed data from 140 students who participated in courses using cafeteria-style grading. Students were presented with assignment options in categories such as assessment, discussion, critical thinking questions, research paper, quiz, and final exam. Additional categories of "complete", "create", and "demonstrate" allowed for a variety of assignments involving hands-on activities such as completing an online tutorial. The final category was to interview a professional, which allowed students to reach out to experts in the field, or network with professionals at their own company. Notably, the only category required for the students to complete was the quiz category. A quiz was given for each module to ensure that all course material was covered. Of the 140 students, 36 percent ended the course with more points than needed for an A grade. The researchers analyzed the categories of assignments that students preferred. Other than the quiz category, which was required, the final exam category had the highest completion rate, with 79 percent of students completing this assignment. The discussion category was second with 51 percent, followed by critical thinking questions at 30 percent. The other categories were all represented, with complete at 28 percent, interview professional at 26 percent, demonstrate and create both at 21 percent, research paper at 19 percent, and assessment at 17 percent. Student feedback was overwhelmingly positive, but Haniewicz et al. (2017) noted that some feedback asked for specific assignments to be required to better address course objectives.

Some researchers note that a concern with this style of grading can be that students may complete all of their assignments in one half of

the course, causing them to miss exposure to concepts and course objectives covered throughout the course (Arendt et al., 2014). An approach that addresses this limitation would include some required assessments spaced strategically throughout the course, ensuring that course objectives are met.

Cafeteria-style grading is especially appropriate in the online learning environment, where it can serve as an aid to motivate students to be active participants in a virtual classroom. Researchers have found that online courses are not the best place for passive learning. Learner-centered teaching has been found to be more effective for online learners (Haniewicz et al., 2017). Teaching online requires an instructor to think differently about how to structure the learning environment and to consider new ways of teaching (Fish & Wickersham, 2009).

3. THEORETICAL FRAMEWORK

Weimer's (2002) model of learner-centered teaching (LCT) provides a theoretical foundation for this study. The LCT model calls for a shift in the role of the teacher and the balance of power between teacher and students. The traditional role of a teacher is to disseminate knowledge to students and this is often accomplished via lecture. The LCT model calls for the role of the teacher to change to one of facilitation. In this role, the teacher provides resources for students, designs engaging assignments, and facilitates peer-to-peer learning. Weimer (2002) also suggests that student learning is negatively impacted when the teacher holds too much control over the processes through which students learn. This speaks directly to the focus of this study. Allowing student choice in assignments is one way of shifting the balance of power in a classroom environment further toward the student. The LCT model also posits that the function of course content is to develop learning skills. Weimer (2002) notes that this may be a concept that receives resistance from many faculty members who feel that a certain amount of content must be delivered to students. The LCT model, in contrast to these views, supports the idea that using course content to help students learn how to learn is of more value to the student. Another tenet of the LCT model is that evaluation and assessment should not be used only for the purposes of assessment, but must also contribute to student learning. A suggestion for incorporation of this concept is to ensure that exams and other assessments are reviewed with students so that they can learn from any mistakes. Finally, the

LCT model proposes that instructors must encourage students to accept the responsibility for their own learning (Weimer, 2002). Allowing student choice in assignments can be one way of promoting this tenet of the LCT model.

Active learning is defined as any instructional method that engages students in the learning process. Active learning focuses on how students learn rather than what they learn. This correlates closely with Weimer's (2002) LCT model tenet that the function of course content is to develop skills in how to learn. Active learning encourages students to think deeply about subjects and engage with course concepts rather than passively listen to information provided by the teacher. This includes adding activities into the classroom to replace or supplement lectures, and using a variety of techniques to promote student collaboration and engagement with the course content (Prince, 2004). Active learning has its basis in the theory of constructivism, which argues that learning is a process of "making meaning" and that learners "construct" their own understanding about subjects (McLeod, 2019).

Bigatel et al. (2012) surveyed 197 faculty with experience in online teaching and found that active learning was rated as one of the most relevant competencies for online instructors. Gold (2011) found that a constructivist, active learning approach can be used to promote deep understanding of course material in an online course. An active learning approach in an online course can take advantage of the unique environment to design learning activities that incorporate Internet searches and students' own experiences along with knowledge connections they make via interactions with classmates and the instructor. This allows for more self-directed learning (Hathaway, 2014).

4. PURPOSE

The purpose of this study was to explore the impacts of allowing online students the flexibility to choose assignments that appeal to their interests and learning styles while still meeting course objectives. Past studies have suggested that student choice in assignments can lead to a learner-centered teaching environment and encourage students to go beyond expectations in a course (Arendt et al., 2014; Haniewicz et al., 2017). However, a criticism is that students may focus on quantity rather than quality and earn enough points for an A grade via completion of additional assignments, but with a low level of effort. (Haniewicz et al., 2017). This

study addresses this with the following research question:

RQ1: How does an online course format allowing student choice in assignments impact the quantity and quality of assignments completed?

Another criticism of this course structure is that students may opt to complete assignments that are all of a singular type. For example, a student could select all writing activities rather than hands-on activities, which could be detrimental to their preparation for the workplace (Haniewicz et al., 2017). This study explores this issue with the following research question:

RQ2: How will online students in a course allowing student choice in assignments distribute their work among the offered assignment categories?

5. METHOD

This study analyzed the results of cafeteria-style grading in two undergraduate online courses in information systems offered by two different instructors during the 2019-2020 academic year. One of the courses was a course on mobile security policy and another was a course on cyberlaw. These courses are primarily taken by information systems students. Prior to beginning, the research study was reviewed and approved by the university's Institutional Review Board (IRB). Each instructor implemented a course framework within the Blackboard Learning Management System that offered multiple assignments as options for each weekly lesson module. The options utilized a variety of assignment categories designed to appeal to a variety of learning styles and interests, and incorporate active learning while still focusing on course content and objectives. Due to the need for a variety of assignments for each learning objective, course setup took a significant amount of additional time for instructors as they built these online courses.

Each instructor required weekly quizzes that focused on the content covered that week. All other assignments were optional. Point values for each assignment were established based on difficulty level and an estimate of time required to complete the assignment; not all assignments for a given week had the same point values. A grading scale was provided to students at the beginning of the course. The grading scale

clearly listed the number of points required to achieve each letter grade.

Students also received clear instruction on the format of the course when the course began. A statement (adapted from Arendt et al., 2014) detailing "How this course works" was utilized in the course syllabi for both courses and prominently posted in Blackboard. This statement can be found in the Appendix. To ensure that students understood the grading scale and process by which assignments would be handled and graded, a course orientation quiz was also required in the first week. This quiz covered details about how the course format would be structured and students had the opportunity to review any items missed so that they would have a clear understanding of the course format from the start. The adaptive release feature in Blackboard was utilized to require that students had to complete this quiz before the first week's content would be opened for them in the course shell.

After the courses concluded, assignment and grade data was collected from the course Blackboard shells for analysis. No student names were kept with the final data set. It is important to note that these instructors were implementing assignment choice as a new active learning approach in their courses regardless of this research. The research simply looks at outcomes after the courses ended.

6. FINDINGS

Assignment Type	# of Assignments	# of Points
Quizzes (Required)	9	205
Discussions	3	125
Topic Papers	5	375
Games	4	300
Slide Presentations	5	300
Wikis	1	50
Critical Thinking Questions	4	140
Video Presentations	3	250
Interview of Professional	1	100
Projects	1	100
TOTAL	36	1,945

Table 1: Number of Assignments and Points Available in Each Assignment Category in Instructor A’s Course

Instructor A’s course included 10 assignment types: quizzes, discussions, topic papers, games, slide presentations, wikis, critical thinking questions, video presentations, interviews of professionals, and projects. Quizzes were the only required assignment in the course. The breakdown of number of assignments and points in each assignment type category is shown in Table 1.

Instructor B’s course included 10 assignment types: quizzes, discussions, traditional assignments, games, slide presentations, wikis, video presentations, podcasts, interviews of professionals, and video critiques. Quizzes were the only required assignment in the course. The breakdown of number of assignments and points in each assignment type category is shown in Table 2.

Assignment Type	# of Assignments	# of Points
Quizzes (Required)	9	300
Discussions	2	200
Traditional Assignments	5	500
Games	2	200
Slide Presentations	3	300
Wikis	2	200
Video Presentations	4	400
Podcasts	2	200
Interview of Professional	2	200
Video Critiques	3	300
TOTAL	34	2,800

Table 2: Number of Assignments and Points Available in Each Assignment Category in Instructor B’s Course

Addressing RQ1

The first research question asked, “How does an online course format allowing student choice in assignments impact the quantity and quality of assignments completed?”

Both Instructor A and Instructor B agreed upon a points-based grading scale to be utilized for each of their courses. As all assignments in

these courses, with the exception of weekly quizzes, were optional, more points were available than were necessary to earn an A. In Instructor A’s course, there were a total of 1,945 points available. This means that there were more than double the amount of points needed to earn an A that were available via optional assignments in the course. Approximately 200-250 points in assignments were offered each week in Instructor A’s course. Assignments were due at the end of each week; so, students could only complete the assignments for a given week up until that due date. This prevented students from being able to wait until the end of the semester and turn in a grouping of assignments all at once. In Instructor B’s course, there were a total of 2800 points available. This means that there were close to three times the number of points needed to earn an A that were available via optional assignments in the course. Approximately 350 points in assignments were offered each week in Instructor B’s course. Assignments were due at the end of the week. Once a week had ended all assignments for that week were closed. The grading scale used is shown in Table 3.

Points	Grade
930+	A
900-929	A-
870-899	B+
830-869	B
800-829	B-
770-799	C+
700-769	C
590-699	D
0-589	F

Table 3: Points-Based Grading Scale

The 21 students in Instructor A’s course collectively completed a total of 57% of the assignments offered in the course. In Instructor B’s course, the 21 students completed a total of 61% of the assignments offered in the course. These may seem like a low percentage, but Instructor A’s course offered 1,945 points and Instructor B’s course offered 2,800 points in total, when only 930 points were required to earn an A grade. A better measure of quantity may be to note how many students in the course completed more assignments than needed to earn an A grade. In both Instructor A’s and Instructor B’s courses, 10 out of 21 students (48%) earned more than 930 points. Four of

these 10 students earned more than 1,000 points in Instructor A's course, with the highest score being 1,051. In Instructor B's course three out of the 10 students earned more than 1,000 points with the highest being 1,110. This was an extremely positive result, showing that nearly half the class completed more assignments than were necessary to pass the course with an A.

In Instructor A's course, the average number of points earned was 854, which was a B on the grading scale. The median number of points earned was 921, which was an A-. Of the students in the course, 47% earned an A, 14% earned an A-, 4% earned a B+, 10% earned a B, 10% earned a C+, 5% earned a D, and 10% failed the course with an F. In terms of quality of work, the students in this course performed extremely well, with 61% earning an A or A-grade.

In Instructor B's course, the average number of points earned was 833, which was a B on the grading scale. The median number of points earned was 914, which was an A-. Of the students in the course, 54% earned an A, 10% earned an A-, 6% earned a B+, 8% earned a B, 8% earned a C+, 4% earned a C, 2% earned a D, and 8% failed the course with an F. In terms of quality, 64% of the students in the course earned an A or A-grade.

Addressing RQ2

The second research question was, "How will online students in a course allowing student choice in assignments distribute their work among the offered assignment categories?"

There are some interesting findings regarding how the students chose to distribute their work amongst the assignment types. In Instructor A's course, the category with the highest percent completed was the quizzes category, at 95%, which is not surprising as the quizzes were required. Per the syllabus, if a student did not complete a required quiz, it would result in dropping a letter grade for their final course grade. The next highest percentage in Instructor A's course was in the category of slide presentations (65%), followed by discussions (63%), and critical thinking questions (60%). The games category was at 43%, followed by interview of professional (33%), and topic papers and video presentations (both at 27%). The lowest categories were projects (19%) and wikis (14%), both of which only had one assignment offered per category during the course.

Some areas of note were the high completion position of discussions. Online discussions are often anecdotally complained about by students as tedious, and yet when given the choice, 63% of discussion assignments in this course were completed by students. Of the game-based assignments offered, 43% were completed. For these assignments, students were asked to create a review game based on a topic from the week; they also had the opportunity to play review games created by their classmates. Based on literature surrounding the benefits and advantages of gamification in the learning environment, the instructors expected a bit of a higher completion rate for this category. Lastly, it was surprising that projects came in at only 19%. However, there was only one project offered in week 8 (the final week) of the course. This project is typically offered as a type of "final project" or capstone in the traditional version of the course. Projects have been well received in the past, but choosing to offer a larger project in the final week of this particular course with this new grading structure may have impacted students' willingness to take on a larger project-based assignment. Many students had already earned enough points to pass with an A before the final week of the course. In future iterations, the instructor would choose to offer more projects and place them throughout the different weeks of the course.

In Instructor B's course there were also some interesting findings. The category with the highest percentage, at 85% was the weekly quizzes. As noted earlier, this was the only required activity that the students had to complete. A failure to complete even one quiz would result in a student losing a letter grade. The next highest percentage in Instructor B's course was interviews of a professional (57%), followed by video critiques (45%), where students were required to find a video on a topic listed in the weekly readings. They were to post the video and critique the information. The next highest category was podcasts (27%) where students created a lesson of the weekly material followed by games at 25%. It is interesting to note that discussions came in at 23%. As noted earlier, discussions usually are what students often complain about the most when it comes to online courses. It was noted early in the course that students preferred answering the discussion questions. Instructor B decided to eliminate the discussions after the first three weeks to see what else the students would choose as options. The next highest category was slide presentations at 19% followed by traditional

assignments and video presentations (both at 18%), and lastly wikis came in at 6%.

The percentage breakdown by assignment type can be seen in detail in Table 4.

Assignment Type	% of Assignments Completed – Instructor A	% of Assignments Completed – Instructor B
Critical Thinking Questions	60%	N/A
Discussions	63%	23%
Games	43%	25%
Interview of Professional	33%	57%
Podcasts	N/A	27%
Projects	19%	N/A
Quizzes (Required)	95%	85%
Slide Presentations	65%	19%
Topic Papers	27%	N/A
Traditional Assignments	N/A	18%
Video Critiques	N/A	45%
Video Presentations	27%	18%
Wikis	14%	6%

Table 4: Percentage of Assignments Completed by All Students per Course by Assignment Type

Student Feedback

Based on the grades earned, students did well in this environment. Students also appear to have enjoyed the ability to select the assignments they wished to complete. Student feedback is solicited for all instructors at the university for each course taught during a given semester. These student evaluations allow students a place to write in anonymous comments to the instructor regarding the course, noting what they think the instructor had done well and what could be improved to make the course more effective. Instructors cannot view these course evaluations until after final grades have been submitted. For Instructor A's course, there were several comments that were very positive about the choice in assignments highlighted in the section asking what was done well:

"I liked the way the assignments were offered to the students. It put less pressure on us because we got to choose what we wanted to do instead of being forced into something."

"Giving us a variety of assignments each week. Giving us more than enough attainable points each week to achieve an A+."

"Many different types of assignments were available to do, which made the course much more exciting."

"I loved the a la carte type of assignments. Helped with learning and not being bored with the material. It also gave a sense of control."

One comment in Instructor A's course for improvement was:

"Change the grading system in a way to avoid the zeros for undone optional assignments."

This referred to the fact that Instructor A filled in a score for all assignments; so even if a student chose not to do an assignment, they received a zero. This appears to have been disappointing to at least one student and could be an issue to change in future courses.

Instructor B had similar feedback from the students. The students especially liked that they could choose assignments that best fit their learning style. Some comments included:

"I liked that I could pick assignments that fit how I like to learn. Creating games was fun, but creating podcasts was my favorite. Believe it or not, I actually learned more in this class than many other classes because I had a chance to teach."

"This class was fun and gave students a creative way to learn."

"I wish that the university would have more classes like this. I especially liked choosing the type of assignment."

"I was able to earn an A completing assignments at my speed. Having the choice helped a lot. If I saw that I needed more points for an A, I completed another assignment."

7. CONCLUSIONS

In this study, the authors analyzed the results of two online courses where they introduced student choice in assignments. They respectively implemented a variety of optional assignments to meet the learning objectives for each week of the courses. More assignments were offered than were needed to earn an A grade in each course. The assignments offered also spanned a

variety of types that would appeal to different student learning styles, such as creating videos and podcasts, writing papers, interviewing professionals, hands-on activities, building collective content in wikis, and developing their own games to review course material and playing games created by classmates. This allowed students to choose, a la carte, the types of assignments that they wished to complete to meet the learning objectives while appealing to their own learning styles and interests. This type of system has been referred to as cafeteria-style grading (Arendt et al., 2014).

Results indicated that students did well in this learning environment, with an average grade of B in both courses. In addition, there were 21 students in each course, and in both courses, 10 students chose to complete more assignments than were necessary to earn an A. The authors feel that this result is perhaps one of the best indicators of success in terms of student engagement within the courses, and this finding is also consistent with results found by Arendt et al. (2014) and Hanewicz et al. (2017).

In regard to assignment types, students did choose to complete a variety of types of assignments, ranging from those requiring writing skills to audio and video presentation skills to creative design and organization skills needed for developing slideshows. An interesting finding was that despite anecdotal remarks from students complaining about online discussion assignments, 63% of discussion assignments offered in Instructor A's course were completed. Presentations are another type of assignment that are typically disliked or feared by many students. However, 27% of the video presentations offered in Instructor A's course were completed by students and 27% of the podcast assignments were completed in Instructor B's course. Another interesting finding was in the category of games. A total of 43% of game assignments were completed in Instructor A's course and 25% were completed in Instructor B's course. These assignments required students to create games to review specific course material assigned for the week. They also allowed the opportunity for classmates to see and play the games created. While a good percentage of these assignments were utilized, the instructors were surprised that they were not more universally accepted by students due to the popular nature of gamification in learning. This may be due to the fact that the requirement included the creation of a game rather than simply the playing of one.

Anonymous student reviews of the courses were overwhelmingly positive in response to the a la carte style of assignments and grading. Further refinement of assignment types and offerings may prove to have even more benefits. Overall, the authors feel that cafeteria-style grading is a useful tool for creating a more active learning environment in online courses.

However, the authors note that the small sample size in this exploratory research is a limitation, and further studies are needed to fully understand the impacts of allowing student choice in assignments for online courses. Similar studies with larger samples would be helpful. Future studies may also wish to directly survey students taking such a course regarding their thoughts on assignment choice in regard to engagement.

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Editor's Note:

This paper was selected for inclusion in the journal as an EDSIGCON 2020 Distinguished Paper. The acceptance rate is typically 7% for this category of paper based on blind reviews from six or more peers including three or more former best papers authors who did not submit a paper in 2020.

Appendix

The syllabus statement used for the student choice in assignment courses in this study is provided here. This statement was adapted from Arendt et al. (2014):

How this course works

Selection of assignments to complete:

In this course, assignments are handled differently. Assignments are served up cafeteria-style. This means that you get to choose to do those assignments that appeal to your own learning interests and you do not need to complete all the assignments to get an A grade. Instead, you complete the assignments desired in order to earn the applicable points. A grading scale showing the number of points required for each letter grade is available in the syllabus and also in Blackboard. There are more points offered than what is required for an A. This gives you many options for earning your grade. You can do the amount of work you want to try to achieve the grade that you desire.

Required quizzes:

The only assignments that will be strictly required are the course orientation quiz in week 1, and weekly quizzes covering the reading assigned for that week. These items will be clearly marked as required in Blackboard.

Due dates for assignments:

Once an assignment's due date has passed, that assignment is no longer an option to complete. Period. You cannot resubmit or revise an assignment after its due date has passed. Further, you cannot resubmit or revise an assignment after it has been graded.