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# The Gamification of CRS 559: Principles of Creative Problem Solving

William D. Yates

*State University of New York College at Buffalo - Buffalo State College, yateswd@buffalostate.edu*

Dylan Gafarian

*State University of New York College at Buffalo - Buffalo State College, gafarid01@mail.buffalostate.edu*

## **Advisor**

Dr. Susan Keller-Mathers

## **First Reader**

Dr. Susan Keller-Mathers

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The Gamification of CRS 559:  
Principles of Creative Problem Solving  
by

William David Yates  
&  
Dylan Gafarian

An Abstract of a Project  
In  
Creative Studies

Submitted in Partial Fulfillment  
of the Requirements  
for the Degree of  
Master of Science

April 2019

Buffalo State  
State University of New York  
Department of Creative Studies

## ABSTRACT OF PROJECT

The Gamification of CRS 559:  
Principles of Creative Problem Solving

The well-respected Buffalo State College International Center for Studies in Creativity (ICSC) offers undergraduate and graduate degrees in face-to-face and online formats but has taught its online courses in predominantly traditional design formats. For their master's degree project, graduate students David Yates and Dylan Gafarian hoped to lead the department in a new direction by creating and teaching an online game version of CRS 559--Principles in Creative Problem Solving, which is the first course in both the Certificate and Master's Degree in Creativity and Change Leadership. Yates and Gafarian followed established practices for both game structure and online course design. They took their lead for the latter from training provided by the State University Of New York Information Technology department, and used that department's Open SUNY Course Quality Review (OSCQR) as a guide (See Appendix G). Yates and Gafarian team taught their gamified version of CRS 559 in the spring of 2019 and followed well-documented pedagogical practices for effective online teaching.

Keywords: online course design, innovative, creativity, gamification

*William David Yates*

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*Dyl Gaf*

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April 29, 2019

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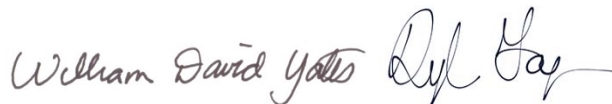
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Dr. Susan Keller-Mathers  
Associate Professor



May 7, 2019

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David Yates & Dylan Gafarian  
Students

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## Dedication

We wish to dedicate this project to our cohort members, Mary Clark, Allynne Viana, Shazina Masud, Jessica Murfin, Janet Stormes, Margie Gartner, Michelle Neumayer, and Carolina Valsangiacomo, who inspired us, educated us, and played with us throughout our remarkable journey in Buffalo State's Creativity Studies program.

## Acknowledgements

We want to thank all of the remarkable professors who have guided us in Buffalo State's life-changing Master's Degree in Creativity and Change Leadership, including Sue Keller-Mathers, John Cabra, Roger Firestein, Laura Switalski, Nur Cayirdag, Selcuk Acar, and Gerard Puccio. Your individual and collective dedication to the art, science, and practice of creativity provided us with a model of excellence we will be hard pressed to duplicate. We would also like to thank Brooke Wincklemann, Course Design Specialist for Buffalo States Department of Information Technology, for guidance in the days leading up to the launch of our course.



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## **SECTION ONE: BACKGROUND OF THE PROJECT**

### **Purpose and Description of Project**

If there is a degree program anywhere on our planet that calls for the use of innovative teaching strategies it would be Buffalo State College's Master of Science Degree in Creativity and Change Leadership. The 50-year-old program has a well-developed, research-based curriculum and a distinguished faculty, but has been taught online using predominantly conventional course design approaches. Until, that is, the authors of this project, master's degree candidates Dylan Gafarian and David Yates, teamed up to turn the program's introductory course, CRS 559--Principles in Creative Problem Solving, into a game.

Gamification of a course, unit, or lesson involves using board game or video game elements in a non-game context for the purpose of promoting engagement and motivation in active learning (Alsawaier, 2017). Playing popular board and electronic games like Monopoly, Life, Super Mario Brothers, and Fortnite typically involves advancing through levels of increasing difficulty by accumulating points (or other rewards) while overcoming obstacles. These games often develop both collaboration and creative problem solving skills, including divergent and convergent thinking, as well as inductive and deductive reasoning. Many electronic games also involve imaginary places and colorful characters and typically feature leaderboards that recognize the most successful players. Gafarian and Yates employed all of these elements in the gamified version of CRS 559.

The Buffalo State academic catalog explains that students taking CRS 559 will study the "theory and application of the Creative Problem Solving (CPS) process" and have the opportunity to "practice in both individual and group uses for either personal or professional

contexts.” One of the stated learning objectives of CRS 559 is to have students “examine their creative identity and explore ways to enhance creative confidence.” Indeed, former CRS 559 students, including the authors of this project, report experiencing personal growth in their creative problem-solving skills and in their perceptions about their own creativity, so CRS 559 was reframed as a voyage of self-discovery. Students earn points and move to different lands/levels by completing a wide range of creative activities designed to improve their CPS skills and sharpen metacognition skills so students can self-assess their own creative thinking. Mythical heroes like Jason, Ulysses, and Hercules, all of whom developed creative approaches to overcome the challenges they confronted on their own journeys, served as the models for the voyage CRS 559 students take in the gamified version of the course.

Innovation often involves the creative re-framing of goals, challenges, problems, or opportunities (Johnson, 2010). Inventions like the ubiquitous bar code, the popular Swiffer floor cleaner, and the practical fastener Velcro all owe their existence to creative reframings, so the authors hoped that reframing CRS 559 as a game would model a holistic approach students could take in their own practice of CPS skills, especially with large or multilayered projects. In addition to using the technique of creative reframing, Gafarian and Yates introduced many different CPS tools in their gamified version of CRS 559, including Brainstorming, Brainwriting, Forced Connections, Excursions, S.C.A.M.P.E.R., POINT, the Morphological Matrix, Targeting, and Assisters and Resisters. Yates and Gafarian taught FourSight as the primary CPS process, stressed the principles of divergent and convergent thinking, and introduced other important creative thinking concepts like tolerance for ambiguity, openness to novelty, and a diminished fear of failure.

In preparation for the gamification of CRS 559, Yates completed certificates in basic and advanced course design through the Buffalo State Information Technology Department. As a result of that training, the gamified version of CRS 559 follows the latest research-based course design best practices, including authentic learning activities, frequent opportunities for self-reflection and metacognition skill development, adherence to universal design principles for all course documents and media, and a Blackboard layout that facilitates ease of navigation. Yates and Gafarian, two additional prior completers of CRS 559, one current student, and Buffalo State course design specialist Brooke Wincklemann all previewed the course's layout in Blackboard prior to the first day of classes on January 28, 2019.

In addition to the course design practices described above, Gafarian and Yates followed pedagogical strategies the literature on excellent college online teaching recommends, including communicating frequently with students, providing timely and meaningful personalized multimedia feedback on assignments, encouraging a community of inquiry, improving students' self-concepts, and continuously seeking student input on both course design and teaching methodologies (Weimer, 2017; Nilson, 2016; Brookfield, 2017). One of the students in the first offering of this gamified version of CRS 559 was also the provost of another university and provided Yates and Gafarian with particularly meaningful ongoing feedback about course design and teaching strategies.

### **Goals of the Gamification of CRS 559**

1. Introduce students to the fields of creativity and Creative Problem Solving (CPS) in a non-traditional and innovative way while modeling a holistic approach
2. Help students meet the department-approved nine course intended learning outcomes
3. Help students improve their metacognitive understanding of their own creativity, the study of creativity, and the implementation of creative problem-solving processes and tools
4. Provide students with multiple opportunities to practice divergent and convergent thinking skills individually and with groups.
5. Encourage students to see examples of creativity all around them and to reflect on their personal growth as a creative practitioner
6. To provide the Creative Studies Department and Buffalo State with a model for the gamification of other courses
7. To showcase in a practical, useful, and authentic way the authors' own creative thinking skill development as a result of completing Buffalo State's Master's Degree program

### **Rationale for Selection**

The rationale seemed obvious for Yates and Gafarian, especially after completing all the other requirements for Buffalo State's Master's Degree in Creativity and Change Leadership. The same department that had immeasurably helped the two authors improve their own creative problem-solving skills would benefit from an innovative approach to designing online courses. Using predominantly traditional course design approaches did not seem like an appropriate or optimally effective way to teach all department online courses or, even more importantly, to model creativity for students. By successfully gamifying CRS 559, Gafarian and Yates hope to

use what they have learned about creativity and change leadership to inspire the department to experiment with new online course design approaches.

## SECTION TWO: PERTINENT LITERATURE

Yates and Gafarian researched four primary topics as they prepared to gamify CRS 559:

1. Online course design; 2. Online teaching practices; 3. Creative Problem Solving teaching practices; 4. Course gamification strategies; The sources listed below represent a small sampling of the extensive literature on all four of these topics.

Alsawaier, Raed S. (2018). The effect of gamification on motivation and engagement.

*International Journal of Information and Learning Technology*, 35 (1), pp.56-79.

Alsawaier discusses the effects gamification has in terms of the overall morale and motivation of students. This study stems from three college-level courses and focuses on the gap between theory and implementation. This author argues that the literature on gamification, although useful, is rather limited as of now.

Amabile, T. M., & Kramer, S. J. (2011). *The progress principle*. Boston, MA: Harvard Business Review Press.

Amabile and Kramer (2011) found that employees who were trying to be creative in their jobs needed to believe that they were making at least incremental progress toward goals.

This finding is just as true in education as it is in the corporate world.

Brookfield, S. D. (2017). *Becoming a critically reflective teacher*. San Francisco, CA: Jossey-Bass.

Brookfield has written several books on best teaching practices and is widely respected.

In this book, he urges ongoing rather than end-of-course self-reflection.

Caponetto, I., Earp, J., & Otta, M. (2014). The Gamification and Education: A Literature Review. *European Conference on Game Based Learning*, 1(1), pp. 50- 56.



This paper discusses at length a literature review of the relationship between gamification and education. Gamification has been a hot topic among educators for several years. Within this paper, the authors identify leading forces in the field of gamification as it relates to education.

Clark, R. C., & Mayer, R. E. (2016). *E-learning and the science of instruction*. Hoboken, NJ: John Wiley & Sons, Inc.

Clark and Mayer have studied e-learning for more than 30 years and are now up to the fourth edition of their bible., which relies heavily on what we have learned from neuroscience about the best practices for using electronic media in teaching.

Grabowski, J., Reed, A., Moore-Russo, D. & Wiss, A. (2016). Gamification in online education: How and why?. In G. Chamblee & L. Langub (Eds.), *Proceedings of Society for Information Technology & Teacher Education International Conference* (pp. 254-259). Savannah, GA: Association for the Advancement of Computing in Education (AACE). Retrieved February 9, 2019 from <https://www.learntechlib.org/primary/p/171683/>.

This paper discusses the elements of gamification an online professor should use. the authors offer a solid rationale for gamification but, more importantly, provides suggestions on how to gamify a course.

Hamari, J. Koivisto, J., & Sarsa, H. (2014). Does gamification work? - A literature review of empirical studies on gamification. *Proceedings of the 47th Hawaii International Conference on System Science*. Hawaii, USA.

This study addresses the implementations and how they varied between the studies in terms of what game-like motivation affordances had been implemented. The

gamification implementations varied between the studies in terms of what game-like motivational affordances had been implemented.

Johnson, S. (2010). *Where good ideas come from*. New York, NY: Riverhead Books.

Johnson is a well-known creativity researcher and uses this book to share the stories behind some of the world's most important new ideas and products.

Kapp, K. M. (2012). *The Gamification of learning and instruction: Game-based methods and strategies for training and education*. San Francisco, CA: John Wiley & Sons.

This book discusses the architecture of a gamified lesson. There are several styles to create a game and many areas to avoid. This book discusses those in detail while also addressing the benefits of giving students a creative outlet.

Lee, J.J., & Hammer, J. (2011). Gamification in education: What, how, why bother? *Academic Exchange Quarterly*, 15(2), 146.

Gaming and gamification have infiltrated many areas of our life, especially our education system. This article discusses the pros and cons of adding gamification to learning activities.

Muntean, C.I. (2011). Raising engagement in E-Learning through gamification. *Proceedings of the 6th International Conference on Virtual Learning ICVL*, pp. 323-329.

According to the author, gamification does not imply creating a game. Instead, gamification means making education more fun and engaging without undermining its credibility. Gamification helps students become motivated to study, and, as a result of increased motivation, become more interested in learning. This paper discusses how and why e-learning should be infused with gamification and creativity.

Nilson, L. (2016). *Teaching at its best: A research-based resource for college instructors*. San Francisco, CA: Jossey-Bass.

Nilson has gathered research on several different aspects of effective teaching, including the need to base strategies on what we now know from neuroscience research about how students learn.

Parnes, S. (Ed.). (1992). *Sourcebook for creative problem solving*. Hadley, MA: Creative Education Foundation Press.

Sanchez-Martin, J., Cananda- Canada, F., Davila-Acedo, M. (2017). Just a game? Gamifying a general science class at university: Collaborative and competitive work implications. *Thinking Skills and Creativity*, 26, pp. 51-59.

This study took place in a university classroom with prospective primary education teachers involved in STEM (Science Technology Engineering Math) disciplines. The researchers conclude that the general theme and layout of the game should be in agreement with the students' preferences, individual competitive challenges must be accompanied by other collaborative ones, and gamification must be interesting and fun. Researchers noted that throughout the study, one main issue was collaboration versus competition. Although gamification had produced higher test scores, the competitiveness amongst the participants was a concern.

Weimer, M. (2017). *Active learning: A practical guide for college faculty*. Madison, WI: Magna Publications.

Weimer publishes *The Teaching Profession* newsletter and blog and is widely respected for gathering and disseminating the research on effective teaching practices, especially the use of active and experiential learning activities and assignments.

It should be noted that Yates and Gafarian both teach in higher education and enthusiastically agree with the findings of these gamification studies and the advice of well-respected educators like Stephen Brookfield and Maryellen Weimer, especially regarding reflective practice and active, real-world learning. In addition, Yates wrote his doctoral dissertation on online teaching practices, has been an educator for 45 years, and has two decades of valuable experience teaching in the online modality.

## **SECTION THREE: PROCESS PLAN**

### **Project Timeline**

The seed for planning the gamification of CRS 559 was planted when Yates and Gafarian completed the course themselves in the summer of 2017, although they took the on-ground section of CRS 559 in Buffalo. CRS 559 is the first course in the Creative Process strand of the Master's program at the International Center for Studies in Creativity and introduces students to the study of creative problem solving (CPS) models, processes, and tools while focusing on developing individual creative potential. CRS 559 includes the practical application of CPS skills appropriate for students from a variety of disciplines. Participants receive instruction that is based on more than 50 years of research while learning how to apply the CPS framework and CPS tools to challenges, goals, problems, and opportunities that people face in their personal and professional lives.

In the fall of 2018, Yates teamed up with Dr. John Cabra to teach the online version of CRS 559. During that course, Yates and Gafarian began discussing the possible gamification of CRS 559 as a cooperative master's project. Both men had collaborated on other cohort projects during their time together in the program and had developed a mutual respect for the creative talents of each person. The discussions between Yates and Gafarian took place first with each other and then with Dr. Cabra, with Dr. Puccio (department chair), with the department's curriculum committee, and with the chairperson of that committee and master's project supervisor for the Spring 2019 term, Dr. Susan Keller-Mathers. Their project was approved by all of the above by December 1, and Yates and Gafarian met weekly via Zoom from that point until the course launched on Friday, January 25, three days before the official start of the spring

semester. During the teaching of their gamified course, Yates and Gafarian continued to meet virtually at least once per week, sometimes communicating privately after the conclusion of a Zoom session that involved the whole course.

To facilitate their collaboration, Gafarian and Yates set up a shared folder on the Buffalo State Google Drive. They also made all the contents of that folder available to project supervisor, Dr. Susan Keller-Mathers, so that she could provide ongoing advice. The folder included initial copies of what would be the course syllabus, a document identifying various creative activities that could be used in CRS 559, copies of potential course lectures in audio, video, and text formats, and the templates for course assignments and activities. Yates and Gafarian collaborated on these documents throughout the course and then exported the ones students would use for their assignments since Blackboard, Buffalo State's Learning Management System, would not accept Google Docs, Google Slides, or Google Sheets, Google's equivalent to the three main programs in the Microsoft Office suite.

Blackboard course design began the first week in January 2019 and coincided with course design training Yates received through the Buffalo State IT Department under the direction of course design specialist Brooke Wincklemann. The timing of these two events was fortuitous for everyone involved because potential course activities and game navigation strategies were submitted to Wincklemann for her review and input. She was also given access to CRS 559, along with Dr. Keller-Mathers, and Dr. Gerard Puccio, chairman of the Creative Studies Department. This Blackboard access, along with folder and file sharing via the Google ecosystem, permitted oversight and input on the project from the very start. Wincklemann also provided a test student account that could be given to prior CRS 559 students so that they, too, could offer input on such important factors like game navigation. The gamified version of CRS

559 became fully operational in Blackboard and available to students on Friday, January 25, three days before the official start of the Spring 2019 term.

### **Plan to Achieve Project Goals and Outcomes**

In the game version of CRS 559, students take a virtual nautical voyage to different lands that represent steps in the creative problem-solving process or prominent creativity researchers and Buffalo State professors. The home page includes a leader board that showcases the points earned by the top 3-5 students. Appendix A includes the course syllabus and contract, a document that describes in detail how students earn points and advance to each course level. Students earn points by completing required assignments, logging entries in their weekly log/journal, and participating interactively in the course's eight live Zoom sessions. They have opportunities to earn bonus points by completing optional additional creative activities.

Like most of the world's creative inventors and artists, student have to overcome obstacles. In the CRs 559 game, those obstacles include quizzes, as well as other specialized activities that focus on the psychological and social factors that inhibit creativity. For example, one obstacle asked students to identify 3-5 routine behaviors and how they might vary them in order to step outside creativity inhibiting comfort zones. At each level of the game students can see how the points they have accumulated translate to a grade, but they will not have to worry about competing against other students to achieve any particular grade. The absence of competition is, of course, a departure from typical gaming strategy necessitated because learning, not winning, is the ultimate goal in the gamified version of CRS 559.

Most of the students taking the first gamified version of CRS 559 were from one of Buffalo State's partner schools. These students, members of a Ph.D. program in Creative

Leadership for Innovation and Change, chose Creativity and Change Leadership from Buffalo State as their elective strand.

### **Evaluation Plan**

Yates and Gafarian employed multiple techniques to evaluate the success of their project. They believed that this project needed to be evaluated on an ongoing basis because real students taking a real course for credit meant that the stakes were higher than they would have been had the gamification project been only hypothetical. Input was regularly solicited from the students taking the course via print (Google docs), via polling, and via individual and whole-class discussions with both Yates and Gafarian. Because this was an experimental course, the instructors felt it even more important to begin receiving and acting on student input from the first day of the course. A summary of this input is included later in this report.

Additional evaluation methods included reviews of student submissions to ensure intended learning outcomes were met, an appraisal of student participation in course activities using Blackboard user activity reports, and reviews of the notes from recordings the Zoom sessions. The project supervisor was also invited to participate in the Zoom sessions.

Finally, Yates and Gafarian set up a specific Google Doc in the shared folder mentioned above for the purpose of maintaining instructor reflections on teaching practices and potential improvements.



#### SECTION FOUR: OUTCOMES

In order to make this course fully operational by the start of the Spring 2019 semester, Yates and Gafarian produced much of its content prior to course launch on January 25. The instructors decided that CRS 559's weekly game levels would follow a nautical voyage motif. Lee and Hammer (2011) explained that levels should represent acts of achievement and suggested that before players are allowed to move on to the next level, they should be required to learn new concepts and conquer the objectives of the current level. Amabile and Kramer (2011) found that employees who were trying to be creative in their jobs needed to believe that they were making at least incremental progress toward goals. Because many people do not believe they are creative once they have moved past childhood, Amabile and Kramer's progress principle is especially important in creativity training because it can build confidence. The levels Yates and Gafarian created for CRS 559 were intended to break up course content into manageable bites and provide students with multiple opportunities to feel like they were making progress toward improving their own creativity while simultaneously developing their CPS skills.

For instance, the stages of the FourSight CPS process were spread out over four different levels rather than thrown at students all at once. This course design approach follows the recommendations of Clark and Mayer (2016) about the chunking of course content and did indeed produce the desired *I am making progress* mindset the instructors were looking for. Every student in the course indicated in multiple journal entries that they felt like they were making progress on both fronts. Course assignments also provided a clear indication that students were improving their CPS skills and their attitudes about their own creativity. Perhaps the most significant indicator of this improvement was the noticeable increase in the quality of student work from Level 8 to Level 11. Both levels required that students facilitate a CPS session following provided templates used

throughout the course.

Each level of the gamified version of CRS 559 followed a similar structure in keeping with the recommended online course design principles Yates learned in SUNY IT Department training. One section in each level featured a review of that level's assignments and activities, including their point values. A second section included links to all of the resources for that level, including audio, video, and text versions of all lectures, a practice that enabled Yates and Gafarian to meet SUNY universal design requirements. A third section included links to the directions and templates for all assignments, as well as links to submit those assignments. Screen captures of all these sections can be found in Appendix B. As a result of this structure, students could find everything they needed for a given level in one place, which should have eliminated any Blackboard navigation anxiety. Discussions with students, as well as the complete absence of questions about where to find resources or where to submit assignments verified the wisdom of using easy-to-follow course navigation practices. Because this game-level organizational structure was probably new to students, Yates and Gafarian also provided a video that showed students how to navigate CRS 559.

Games usually involve obstacles and weekly lecture quizzes served that function in Levels 1-7 in this course. All quizzes were open notes/open computer so most students answered all quiz questions correctly. An inconsequential one point per missed quiz question was deducted from a student's weekly participation score. Students earned up to 100 participation points most levels by interactively participating in Zoom sessions, all of which involved creative activities rather than instructor lectures. In these Zoom sessions, students posted responses to questions and submitted drawings, pictures, and illustrations via Google Docs shared with the whole class. In Level 5, for instance, students shared pictures of their Chindogus. In addition to using the Google Drive and

Google Docs to participate in interactive Zoom sessions, students maintained the weekly logs/journals as an ongoing Google Doc so Yates and Gafarian could read and comment on students' entries in a more timely manner than waiting until the end of the week. At the end of each level, students converted their logs to date to PDFs and submitted them for grades in Blackboard.

Yates and Gafarian used creative approaches in both course design and assignment construction. For instance, each level's alliterative title featured a water-themed picture, included a nautical connection, and referenced a stage in the FourSight CPS process (Clarification Cove, Ideation Island, Dunes of Development, Implementation Inlet), or the name of a Buffalo State Creative Studies department professor (Puccio Peninsula of Persuasion, Cabra Canyon, Firestein Fireworks Finale), or the name of a prominent creativity scholar (Parnes Process Promontory, Torrance Tidal Pool, Osborn Oasis Game Break, Ruth Noller Rapids). The students enrolled in the gamified version of CRS 559 were being introduced to the International Center for Studies in Creativity, so Yates and Gafarian wanted to familiarize them with the department's professors and some of the most famous figures in creativity research. Appendix C includes a screen capture of all 12 levels.

Activity A in each level guided students step-by-step through the stages of the FourSight creative problem-solving process using easy-to-follow templates. See Appendix D for the assignment template used for Level 11 Activity A. Several sections of this template were also used earlier in the course when the FourSight CPS process was introduced gradually. In contrast with the process-oriented focus of each Activity A, Activity B in each level, as well as the Zoom sessions, offered opportunities for students to express their creativity in several different less-structured formats. In Level 2, for instance, students were asked to take a physical or mental excursion and then describe the sights, sounds, smells, etc. of that excursion using the multimedia of their choice. See Appendix E for

a copy of the template for Level 2, Activity B. The Zoom session for Level 5 allowed students to share their Chindogus, a form of creativity that involves re-purposing common household items in practical but usually humorous ways.

Each week's Activity A and B included extensive opportunities to write, albeit using CPS process-guiding templates rather than typical graduate-level papers. However, the primary writing vehicle for the gamified version of CRS 559 was a weekly log/journal students used to share what they learned about creative problem solving, as well as how new knowledge or CPS skills affected their own unique journey as a creative person. Students were specifically asked to reflect on major takeaways from course lectures and readings, from Zoom sessions, from classmates, from their professors, and from other course activities, including all assignments and obstacles. Students were encouraged to go beyond making simple observations; instead, to analyze, synthesize, evaluate, and use other higher order thinking skills. Yates and Gafarian were able to read students' Google Doc reflections periodically and comment, share resources, and engage in meaningful asynchronous conversations. These logs gave the two professors an ongoing and documented understanding of students' learning experiences they navigated the gamified version of the course.

Many games offer players opportunities to earn bonus points so Yates and Gafarian provided several optional activities in the form of each level's Activity B. These bonus assignments came in a variety of formats; in some weeks Activity B required students to play creativity-enhancing games, whereas other weeks Yates and Gafarian asked students to build their own Creativity Game. The optional nature of Activity B gave students a chance to determine on their own if the activity was worth completing. The authors are proud to note that more than half the students completed each level's Activity B and, as a result, those students finished with overall averages higher than 100.

## SECTION FIVE: KEY LEARNINGS

This project was designed to achieve the learning objectives listed in the course syllabus and approved by the curriculum committee of Buffalo State's Creative Studies Department. The purposeful and research-based course design, combined with the enthusiastic team teaching of this gamified version of CRS 559, met nearly all of those learning objectives as measured by course assessments, written and oral conversations with students, log/journal entries, and a follow-up anonymous survey. Admittedly, the ultimate success of this course will perhaps be revealed when the students completing it take other department courses, although other variables may make it difficult to determine the precise influence this gamified version of CRS 559 had on long-term student outcomes.

This project was also designed to explore a creative way to design and teach an online version of CRS 559 by using a game motif in the hope that the department would consider gamifying other courses or using similarly creative course design and pedagogical methodologies. Most of those specific goals were met, but some goals were amended throughout the process because of unforeseen challenges. Within this section, these goals, objectives, and challenges will be addressed and explained in further detail.

Here is a review of the planned learning objectives and goals Yates and Gafarian hoped to achieve by gamifying CRS 559:

1. Introduce students to the fields of creativity and Creative Problem Solving (CPS) in a non-traditional and innovative way while modeling a holistic approach
2. Help students meet the department-approved nine course intended learning outcomes

3. Help students improve their metacognitive understanding of their own creativity, the study of creativity, and the implementation of creative problem-solving processes and tools
4. Provide students with multiple opportunities to practice divergent and convergent thinking skills individually and with groups.
5. Encourage students to see examples of creativity all around them and to reflect on their personal growth as a creative practitioner
6. To provide the Creative Studies Department and Buffalo State with a model for the gamification of other courses
7. To showcase in a practical, useful, and authentic way the authors' own creative thinking skill development as a result of completing Buffalo State's Master's Degree program

### **Content Learning**

1. Yates and Gafarian were confident from the beginning of this project that gamifying CRS 559 was the right thing to do in terms of exploring innovative approaches to teaching creative problem solving. All the decisions they made regarding the design and teaching of this course kept this perspective in mind.
2. Yates and Gafarian sought and received department and curriculum committee approval for this project because it involved altering the traditional way CRS 559 was taught online. The Creative Studies Department Curriculum Committee had already approved the key intended learning outcomes for this course and Yates and Gafarian remained loyal to these ILOs throughout the process of designing and teaching of CRS 559.
3. Yates and Gafarian used a scaffolding pedagogical approach designed to introduce the stages and phases of CPS gradually as they occur in sequential order. This was done to

first engage students in overall creativity functions and creative thinking techniques and then implementation of the CPS process. By the conclusion of this course, the students had successfully facilitated a CPS session that assisted an individual, as well as a CPS session that assisted an organization.

4. Yates and Gafarian held eight live two-hour webinars using the online platform *Zoom*. These sessions included several activities intended to build a positive group dynamic since the CPS literature frequently extols the benefits of a positive esprit de corps among facilitation participants (Parnes, 1992). Yates and Gafarian also used these sessions to help students understand their own creativity from both metacognitive and affective perspectives. Each *Zoom* session began with a warm up activity designed to introduce students to the topics addressed in that session. To make these discussions more meaningful, the instructors required that students review multimedia lectures before the start of the session. Other *Zoom* session activities were designed to model the kinds of warm-up/icebreaker/incubation activities students could use in the course's two required CPS facilitations. This combination of synchronous and asynchronous session proved to be beneficial to student participation and learning.
5. Yates and Gafarian used these *Zoom* sessions, as well as other course activities to give students multiple opportunities to practice divergent and convergent thinking. The instructors consistently indicated to students what types of activities and CPS tools were designed for which style of cognitive thinking and that it was very important not to mix divergent and convergent thinking when ideating.
6. Yates and Gafarian encouraged students to see creativity in and around them at all times, even in the most mundane of situations. The instructors explained that living a creative

life would make it much easier to use CPS skills when they needed to tackle a difficult personal or organizational problem, opportunity, challenge, or goal. This was felt primarily when introducing the concepts of Forced Connection. For instance, the Forced Connections activity in the Level 3 *Zoom* session demonstrated the ways that pictures can stimulate ideation because humans make different associations even when looking at the same picture. Students indicated in multiple journal entries, as well as in the Level 8 and Level 11 facilitation assignments that they found similar success using Forced Connections themselves. One student commented: “The activity with the suitcases was hilarious and by then, I was used to the technology. I want to start collecting pictures to use when I work with groups. I’d like to use Forced Connections to generate ideas about doing new things at church. It might work well as a combination with the Opposite Challenge. I’m thinking about this for later”

7. Yates and Gafarian had completed the non-game version of this course early in their progression through the master’s degree program and that prior accomplishment, along with the enthusiastic support of the project from department chair Dr. Gerard Puccio and curriculum committee chair Dr. Susan Keller Mathers, meant that Yates and Gafarian were all-in on this project from the start. Their own passion for creativity, intrinsic motivation for effective teaching, and appreciation for Buffalo State’s program pushed the two instructors to improve the gamified version CRS 559 on the fly. To this end, their own weekly communication via telephone, *Zoom*, e-mail, and text messaging were populated with observations about students’ journals and assignments that helped Yates and Gafarian maximize student learning *during* the teaching of the course rather than waiting until the next iteration of CRS 559 would be offered. This willingness to make ad



hoc improvements should have benefitted the first students taking the gamified version of the course.

8. Yates and Gafarian believe they have created the blueprint for gamifying other Creative Studies Department courses or even for gamifying courses outside the department. Other instructors may need to adapt the gamified version of CRS 559 to fit their own needs and the needs of their students, but the fundamental design for gamifying a course is there, including the use of a leaderboard. The instructors also believe that many of the templates provided to CRS 559 students could easily be modified for other courses since they are set up with a consistent structure that includes a sections for background information, directions, and an evaluation rubric. Perhaps even more importantly, the game structure of CRS 559 could serve as a model for using other creative formats. For instance, a theme park structure could replace the game motif. Students would visit lands or attractions in a theme park and assignments could take on a ride theme.
9. Ultimately, this project can be viewed as a microcosmic reflection of Buffalo State's Master's Degree in Creative Studies because Yates and Gafarian used what they learned about creativity and about creative problem solving throughout the planning and teaching of this course. The gamified version of CRS 559 also showcases the instructors' individual and collective practical creative thinking skills, their course design skills, their teaching skills, and their ability to collaborate. This course required many months of forethinking, preparation and overall creativity. In the following section on **Process Learning**, both Yates and Gafarian share their own reflections of the team-teaching process.

## **Process Learning**

As illustrated in the timeline found in Section Three, the process to design the gamified version of CRS 559 and teach it during the Spring 2019 semester was daunting. However, this process was not done alone, but was conducted by co-instructors Dr. David Yates and Dylan Gafarian, master's degree candidates of Buffalo State College. The two worked together regularly to develop and teach the course. Below you will find the collective reflections on the process from Yates and Gafarian.

### **David Yates:**

As a career educator, I could not think of a better way to end this life-changing master's degree program than to collaborate with a respected fellow cohort member on a meaningful real-world project. Although I was blessed to take courses with knowledgeable and experienced professors, none of them used particularly creative course design or teaching methodologies so it was especially rewarding to be able to give back to the Buffalo State Creative Studies Department by turning the program's introductory course into a creative game.

Although this process took extensive amounts of time, taxed our general creativity, and stretched our creative problem-solving skills, in reality, the similarities between effective teaching and successful game design are so pronounced that Dylan and I were rarely perplexed about what to do next in the process. For instance, like many of my fellow teachers, I have long believed in the efficacy of scaffolding learning, which basically means doling out concepts or working on skill development in steps small enough to avoid producing cognitive overload. Most games similarly start slow and small and work their way up to more complex tasks,

People love to play games because they are often rewarded quickly (if not instantly) for succeeding. Dylan and I built many opportunities to succeed into the structure of our course and

were diligent about providing students with feedback on their assignments in a timely manner. Blackboard graded Lecture quizzes automatically, we commented, offered advice, and shared resources in students' logs/journals throughout the week, and provided multimedia feedback on assignments within 48 hours of their submission dates. The best practice teaching literature consistently recommends that educators provide their students with feedback frequently and in a timely manner, especially if scaffolding instruction. Dylan and I always felt it was particularly important to be punctual in providing feedback in our gamified course because each assignment closely connected with both the preceding level and the ensuing one.

The one main way we deviated from gamification involved competition. Games are often very competitive. Players typically try to defeat their opponents by scoring more points or demonstrating superiority in some other way and prizes are usually awarded to the winner. However, competition and meaningful learning are sometimes at odds with each other because good learners are not necessarily competitive by nature and in the area of creative problem solving, collaboration is often more beneficial than competition. Therefore, Dylan and I set up this course to promote student mastery of objectives and not student mastery of other students. We also encouraged students to collaborate on most assignments, especially the Level 8 and Level 11 facilitation projects. We did maintain a game-like leaderboard on the homepage of our course in Blackboard but displayed the names of only the top five or six students points-wise so would not embarrass students who lagged behind their cohort members.

A second deviation from typical gaming structure centered around assignment deadlines. Many games are self-paced but we could not allow students to work at their own pace in our gamified version of CRS 559 because of the interactive nature of our Zoom sessions. If students

were not on schedule they could not participate optimally on Zoom because some of our webinar activities were directly tied to a particular level's focus.

I was pleasantly surprised in a number of ways, starting with the number of students who completed all or most of our optional activities. Some involved modest 25-bonus-point additions and some involved no point benefit at all but most students completed them nevertheless. I was also encouraged by the number of students who actively and regularly participated in our eight two-hour Zoom sessions. Blackboard course navigation issues were non-existent after the first level of the course, a good indication that we had successfully designed an easy-to-navigate game structure. Students had virtually no questions about how to complete assignments and indicated in the final zoom session that it was reassuring to always know exactly what was expected. This confidence probably indicated that directions were easy to follow, and that Dylan and I were wise to provide templates for all assignments. In my career, I have consistently found that assignment templates can be worth a thousand directions because many students struggle to organize their thoughts or their research, and templates provide an easy-to-follow structure.

I was unpleasantly surprised in four primary ways. A few students struggled to follow directions, some students were consistently late in submitting work, some experienced technology challenges well into the course, and some of the writing we saw in journals and on assignments was sub-par for a graduate-level course. Dylan and I did not anticipate these challenges because the students in this course are all in a doctoral-level leadership program at another university, however they did provide opportunities for us to use our creative problem-solving skills. We were also keenly aware that the interactions we had with these students were especially important because our course represented their first exposure to Buffalo State's Creative Studies program, because most seemed to be new to both Blackboard and Google,

because we were using a creative format, and because creativity often requires flexibility. However, during our last *Zoom* session we thought it was important to explain to students why we had been so flexible with assignment submissions and to caution them that future professors in this program might not accept late submissions or might do so but assess heavy penalties.

**Dylan Gafarian:**

This has been a wonderful experience and by far the best cultivating and all-encompassing use of creativity. I could not have asked for a better way to put the lessons learned throughout this Master's program to use. This final chapter in my studies here at Buffalo State College would not have been the same without the partnership of Dr. David Yates. With his vast knowledge and experience in online education and creativity, Dr. Yates has made this a true learning experience. Though I was acting as co-facilitator on this project, I often found myself learning just as much if not more than the students were.

After sharing similar interest in the gamification of education early on in our Fall 2018 course, CRS 635 Current Issues of Creative Studies, David and I got to work on the Gamification of CRS 559. It was a true thrill to join David as he was already slated to teach this course for the Spring 2019 semester. His invitation was warm, welcomed, and full of excitement. It was through this excitement that we began penning up the ideas that would later become the gamification version of this course.

The course itself has many layers, I believe from a constructive standpoint, there are too many learning objectives for an introduction course on the concepts of creativity. It was my fear and a fear shared by David that we may cause the students to experience cognitive overload by presenting the students with many concepts and ideas. It is my personal fear that while mandated to stick with the already SUNY decide curriculum outline, that we may cause fatigue in our

students, prior to even introducing the concepts of gamification. I do feel as though our gamification has actually lessen the possibility of fatigue or cognitive overload. Some of the feedback we have heard is that the work assigned rarely felt like work and was more like a game. Which was obviously the intentions of David and myself.

I can confidently say that the implementation of gamification was a success. The students seemed engaged and overall excited about the experience they were a part of. Additionally, I believe this course achieved its goals regarding the foundation set forth by Buffalo State's subsequent courses. Meaning, these students are well prepared to advance their understanding of creativity, creative studies, and the creative problem solving process. With that being said, I fear the student enrolled in our CRS 559 course may have a drastic change in experience now moving into the next level course. Without consistency it may cause a set back in student learning for the next required course.

Among our many conversations, David and I have continuously discussed the importance of not only preparing our students with concepts and principles of creativity, but to also push them to a point of mastery within the CPS process. Bloom's Taxonomy was a wonderful base model David and I used, when designing this course. It was important that each level of the game build upon one another and lead to a place of evaluation, application, comprehension, and knowledge. While we hoped students would learn about the creative problem-solving process, we also strived for our students to metacognitively learn and understand their own creative self.

From a personal vantage point, I have learned a great deal about the various implementation steps in course development. Having taught a few undergraduate courses, this marks my first graduate teaching experience. I was fortunate to have this experience, especially regarding the several new understandings and challenges that came in to play. As co-facilitator, it

was our responsibility to understanding where a student base-knowledge begins, it was in this course that I believe I personally expected more of the students base-knowledge, especially as graduate level students. There were several instances in which simple directions were lost, basic computer skills seemed non-existing, and overall writing ability were less than the required skill-level. This produced several unforeseen setbacks and challenges, in which David and I needed to address and evaluate. Challenges that I believe could have been avoided if we had a more clear understanding of the base-knowledge at the beginning their studies at. This was crucial for me to see and now understand as an educator.

### **Student Feedback:**

As Yates and Gafarian have indicated multiple times in the previous sections of this report, soliciting and acting on student feedback about their experiences taking the gamified version of CRS 559 was an important goal of the project. Colleges typically collect student feedback at the end of courses, but because this project involved using an innovative approach in both the design and teaching of the course, Yates and Gafarian believed that it was important to ask students about their experiences during and after taking CRS 559.

The instructors collected feedback by asking students to reflect in their weekly logs/journals on what and how they were learning about creative problem solving and about their cognitive and affective growth. Students were also asked to share their thoughts in the eight live Zoom sessions, as well as in the comments sections of each assignment self-evaluation rubric. Yates and Gafarian also repeatedly encouraged students to reach out to them for assistance via e-mail, telephone, and Zoom and did have had multiple private conversations with individual students.. These private communication opportunities gave students a safe space to ask questions and to share their enthusiasm and their anxieties. Several students indicated in writing and via the

whole-class Zoom sessions how approachable they found both instructors. Finally, each student was sent a four-question follow-up survey immediately upon the conclusion of the course. This Survey Monkey form preserved students' anonymity and specifically asked about the effect the gamification process had on their learning. All responses to this survey are included in Appendix F.



## SECTION SIX: CONCLUSION

In theory, games and creativity seem rather synonymous. Those who are creative often create fun games or seem to do well in games. Gamifying a course, especially a creativity studies course, proved to be a major feat that requires further study. It is important to remember that the Buffalo State Master of Science Degree in Creative Studies focuses on both creativity and change leadership from a *scientific* standpoint. It is important to note that creativity is more often than not reflected on as an *art* rather than a *science* in some scholarly journals. We, however, approached this study through a scientific lens, with research and literature backing their implementations and findings. Due to the co-facilitator collaboration, we used both our individualistic creative art and science to design and implement this course.

We began this project with our own individual skill sets but have individually and collectively found that college courses, just like most of life, provide almost limitless opportunities for creative expression. This reality was more of a refreshing reminder than a novel takeaway of this project. Nevertheless, it was nice to return to the fundamentals aspects of creative problem solving once again by working with the introductory course in the program. We have now moved even further along on our own voyages of self-discovery and have better understandings of our creative identities.

Co-Teaching the gamified version of CRS 559 certainly embodies the elements associated with change leadership. We believe that our collaboration was exemplary in every respect and that our students, this course, and the Creative Studies department benefitted from that collaboration. Though team teaching was not new to Yates, it was a first for Gafarian, which added an element of fun and ambiguity to the experience. We fervently hope that Buffalo State offers more opportunities for its professors to collaborate on both course design and teaching.

Education benefits from the two-heads-are-better-than-one maxim just as much as creativity does.

Additionally, we hope that the Creative Studies Department and perhaps the entire college or SUNY system will consider gamifying other courses and experimenting with other creative delivery formats, especially for online courses. If we in higher education want to encourage our students to develop their creative thinking skills, we should set the example for doing so by using innovative course design approaches. We expect to meet soon with the department, share the innovative work that was done in gamifying CRS 559, and encourage an overhaul or at least a modification of online course design and delivery formats.

Gafarian hopes to implement these results into the courses he teaches within the SUNY system at Farmingdale State College. Teaching primarily first-year college students, Gafarian can see many benefits from introducing the gamification of course work into the everyday education of his students. This course teaches students how to use many fundamental creative problem-solving tools, and if enhanced with gamification elements, could be replicated for his students' first year of college.

Yates plans to do the same in the courses he currently teaches for Southeastern University, especially the graduate courses he teaches for the SEU College of Education and the doctoral courses he teaches for the university's Organizational Leadership Department. Yates also hopes to continue teaching for the Buffalo State Creative Studies Department, especially future online sections of CRS 559 and CRS 670, both of which he has successfully team taught. Every course he has taught or hopes to teach could benefit from gamification strategies or other creative delivery approaches.

After several months of planning, developing, and teaching a gamified version of CRS 559, it is wonderful to see what creativity can do to enhance students' learning experiences. Though the authors hope to see long-term success from this project, they are proud to know at least one cohort of students that was able to experience this pilot program. Like most projects, the authors did experience their fair share of setbacks, but collectively the outcomes match the goals and student learning objectives were met. We enthusiastically believe that we successfully gamified CRS 559, which is ultimately a tribute to the quality and effectiveness of Buffalo State's International Center for Studies in Creativity.

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Appendix A  
Course Syllabus



**Meet Your Ship's Crew:**



**Captain David Yates**

E-Mail: [yateswd@buffalostate.edu](mailto:yateswd@buffalostate.edu) alt: [dyates@seu.edu](mailto:dyates@seu.edu)

Phone: 863-430-2348



**First Mate Dylan Gafarian**

E-Mail: [gafarid@mail.buffalostate.edu](mailto:gafarid@mail.buffalostate.edu); alt: [dylanmgafarian@gmail.com](mailto:dylanmgafarian@gmail.com)

Phone: 631-833-8295



### **Course Description and Game Operation:**

CRS 559 is the first course in the Creative Process strand of the Master's program at the International Center for Studies in Creativity. CRS 559 introduces students to the study of creative problem solving (CPS) models, processes, and tools while focusing on developing individual creative potential. CRS 559 includes the practical application of CPS skills appropriate for students from a variety of disciplines. Participants receive instruction that is based on more than 50 years of research while learning how to apply the CPS framework and CPS tools to challenges, goals, problems, and opportunities that people face in their personal and professional lives.

You are taking the first game version of CRS 559. As you can see from the description above, a journey-themed game provides an ideal way to frame your experience completing our course because games are about having fun while making progress through different stages or levels by getting better at the skills required by the game.

In our game, you will be taking a nautical voyage to different lands that represent steps in the creative problem-solving process or prominent creativity researchers and Buffalo State professors. We'll have a leader board that showcases the top 3-5 participants at different levels and you'll have the opportunity to earn bonus points and special prizes and awards.

Like most of the world's creative inventors and artists, you'll also have to overcome obstacles. In our game, those obstacles include quizzes in Levels 1-7, as well as other activities in Levels 8, 9, and 11.

At each level of our game you will be able to see how the points you have accumulated translate to a grade, but you do not have to worry about competing against other students to achieve any particular grade. Follow directions, turn in all assignments on time and with

reasonable quality, and participate interactively in our Zoom sessions and you can earn the **A** most graduate students covet.

## Prerequisites:

Willingness to work hard and grow as a creative person while disproving myths that suggest you are either born creative or you are not.



## CRS 559's Intended Learning Outcomes:

Students who participate in course activities and complete assignments will be able to....

1. examine their creative identity and explore ways to enhance creative confidence;
2. identify and use the interactive framework of person, process, product and press to explain creativity;
3. understand and articulate the basic functions of process in creative thinking and problem solving;
4. identify and explain the components, stages and phases of the CPS model;
5. understand the concept of dynamic balance between divergent and convergent thinking in the CPS model and to use it appropriately individually and with groups
6. identify and practice basic creative thinking skills inherent in the CPS process in class and in personal and professional contexts;
7. select and accurately use divergent and convergent tools according to their purpose and function;
8. individually apply CPS tools on a personal or professional challenge;
9. develop and maintain an affirmative attitude toward change and novelty.



## Ten Things You Can Expect from your Instructors

1. Responses within 24 hours to all e-mail and text message communication
2. Availability between 9 a.m. and 9 p.m. ET Mon-Sat. and on Sundays from 1-5 p.m. for telephone or video chats (appointments requested)
3. Professional and prepared leadership in all Zoom Sessions
4. Feedback on log journal reflections throughout the week in the form of Google Doc comments
5. Feedback on and grading of major assignments within 72 hours of due dates (weekly required creative activities, bonus creative activities, two facilitation projects)
6. Automatic grading of all lecture quizzes with feedback on correct and incorrect answers
7. Accurate information in the syllabus and in the Blackboard course shell
8. Transparent rubric-guided and template-guided grading



9. A sense of humor (as you will discover, we are both somewhat crazy)
10. Dedication to serving you, inspiring you, and providing you with a rich and rewarding educational experience. We promise that you will see creativity in general and your own creativity in particular very differently after this course.



## Ten Things We Expect from You

1. A genuine effort to develop a growth mindset, especially where your creative potential is concerned.
2. Enthusiastic participation in course activities, especially our live Zoom sessions.
3. A willingness to communicate with us if there is anything we can do to help you succeed or if you need an extension before a due date passes.
4. A promise to do your best on course assignments.
5. A positive effort to interact with, collaborate with, and make connections with your classmates, looking for opportunities to work together on your two CPS facilitation projects rather than going solo because it is easier.
6. A genuine thirst for learning new things and developing your creative problem-solving skills.
7. Increased recognition that creative problem-solving involves hard work rather than waiting for aha moments or flashes of insight to come to you.
8. Improving your ability to defer judgment during ideation and to keep novelty alive when converging on potential feasible ideas.
9. A genuine effort to improve all four FourSight profiles despite your preferences for any of them.
10. An openness for trying new things, varying your routines, tolerating ambiguity, and reframing failures as opportunities to learn.



## Course Materials

### Highly Recommended Resources:

- Miller, B., Vehar, J., Firestien, R. L., Thurber, S., & Nielsen, D. (2015). (5<sup>th</sup> edition). *Creativity Unbound: An introduction to creativity*. Evanston, IL: FourSight, LLC.
- *Innovation Station: A Launch Pad for New Thinking*. (2015). Evanston, IL: FourSight, LLC.
- *FourSight Tool Cards*. (2016). Evanston, IL: FourSight, LLC.

### Additional Recommended Resources:

- Puccio, G. J., Mance, M., Switalski, L. B., & Reali, P. (2012). *Creativity rising: Creative thinking and creative problem solving in the 21st century*. <http://icscpres.com//index.php?clD=125>
- Subscription to MindTools ([www.mindtools.com](http://www.mindtools.com))



## Technical Requirements

Our course will use Buffalo State's learning management system Blackboard, the Google suite of programs (especially Google Docs and Google Drive), the web-based webinar platform Zoom, and Qube virtual world software.

To enjoy success, you will need the following technology:

- a relatively up-to-date Mac or Windows computer (not a phone or tablet)
- a working built-in or external webcam
- a working built-in or external microphone
- a relatively fast Internet connection.
- a pair of headphones to prevent feedback during our Zoom and Qube sessions

If possible, connect your computer to a modem or router using an ethernet cable rather than using Wi-Fi. Also remind yourself that most public Wi-Fi networks are notoriously slow and will disrupt our live sessions.

You will also need to use the Google Mail account given to you as a Buffalo State student. Course e-mail communication will take place using that account and you will use it to access a Google Doc log (journal) template that will be given to you to record your learning and creative problem-solving growth reflections. Your instructors will be commenting on your log entries during the week, offering encouragement and tips on how to develop your creativity, as well as sharing additional resources.

At the end each week of our course, you will download your Google Doc Log to a PDF file that is submitted in Blackboard because Blackboard is a time-stamped, password-protected repository of all course work. Course lecture quizzes will be taken in Blackboard, which will also contain other course resources.



## Technical Help and Academic Support Services

Buffalo State provides Blackboard technical assistance at 1-844-673-6786 or you can create a support request ticket at the [HelpDesk web page](#).

If you need log-in assistance for any of Buffalo State's electronic systems (Banner, e-mail, Blackboard), visit the university's [IT Services](#) page, send an e-mail to [ithelpdesk@buffalostate.edu](mailto:ithelpdesk@buffalostate.edu), or call 716-878-4357.

You can also access academic support services by visiting the [Buffalo State Student Resources](#) page of the university's website.



## ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

This course has been lovingly designed to meet students with varying needs and learning style preferences. For instance, lectures are provided in video, audio, and text formats. Instructional materials have been provided in universal file formats like PDF, MP3, and MP3. Lecture quizzes are open resource and untimed, and students are encouraged to play to their academic strengths when completing assignments, especially when making choices about how to complete assignments like lecture reflections and CPS facilitation sessions.

Any student who requires accommodations to complete the requirements of this course due to a disability is invited to make his or her needs known to the instructors and to the director of the Disabilities Services Office at 716-878-4500.



## Course Communication:

CRS 559 is an online class with both synchronous (real time) and asynchronous (on your personal schedule) activities. The literature on creative problem solving has consistently found that groups of people are more likely to generate large numbers of innovative ideas than individuals are. The primary way we will communicate and collaborate is through eight Zoom synchronous meetings that are intended to foster group camaraderie by engaging participants in interactive team-building activities and discussions.

You will also have the opportunity to use the virtual platform Qube to simulate a CPS facilitation session with your classmates before completing our course's two required CPS facilitation sessions. See the Appendix below for instructions to get access to Qube.

For individual communication with your instructors, use the e-mail addresses shared earlier. We have also shared our mobile telephone numbers for calls or texts but advise you to alert us via e-mail first so we can add your number to our contact list. Appointments are also preferred to cold calls but know that we will be happy to talk to you and to help you any ways we can.

Please call on us to offer advice or answer questions anytime, but be especially willing to reach out for assistance as you plan your two CPS facilitation projects.

We will also be using the Remind Texting App. If you would like to receive text message reminders during our course, click [Here](#).



## Synchronous Zoom Meeting Schedule



The eight required “live” Zoom electronic seminar sessions will be held from 7 to 9 p.m. Virgin Island Time (6-8 ET) on the following Tuesdays:

- 1/29
- 2/5
- 2/12
- 2/19
- 2/26
- 3/12
- 4/2
- 4/23

Try your absolute best to participate in each of these sessions for the reasons described above. If you have to miss one because of an unavoidable conflict or emergency, please contact Dr. Yates to arrange make-up work. Because the activities and discussions in our Zoom sessions will vary, so will what you are asked to complete for make-up assignments.

# Course Requirements



## Required Tasks at a Glance

- 1) Completion of the FourSight Profile (100 pts.)
- 2) Interactive participation in 8 Zoom sessions in levels 1-5, 7, 9,12 (100 pts. ea.)
- 3) Weekly log (journal) reflections in levels 1-9 and 11. (100 pts. ea.)
- 4) Weekly Creative Activities in levels 1-7, and 9 (100 pts. ea.)
- 5) Level 1 *Meet Your Fellow Passengers Bio Post* (50 pts.)
- 6) Level 8 Creative Activity A: 1<sup>st</sup> CPS Facilitation Project (250 pts.)
- 7) Level 11 Creative Activity A: 2<sup>nd</sup> CPS Facilitation Project (250 pts.)
- 8) Course obstacles: Lecture Quizzes in Levels 1-7 (deductions of up to 5 points per quiz)
- 9) Course obstacles: Miscellaneous activities in Levels 8, 9 and 11 (deductions up to 5 pts ea)



## Optional Tasks at a Glance

1. Adding creative media to your *Meet Your Fellow Passengers* post (up to 25 bonus pts.)
2. Completing Creative Activity B in Levels 1-9, and 11. (up to 25 bonus pts. ea.)



## Participation in Zoom Sessions

Each session is worth 100 points and you will have no problem earning those points if you participate interactively rather than logging into Zoom and simply observing your classmates. Active participation includes asking questions, responding to questions, and participating in activities.

Your participation in these zoom sessions will be evaluated according to the following rubric:

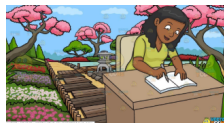
**100 points**—student joins entire session and actively participates throughout

**75 points**——student joins entire session and actively participates in parts of it

**50 points**——student joins entire session but does not actively participate

**25 points**——student joins only part of the session

**0 points**——student does not join session at all and does not arrange for make-up assignment prior to the start of the session



## Personal Log (Journal)

The primary writing vehicle for this course will be a weekly log of what you are learning about creative problem solving, especially about your own unique journey as a creative person. You should also reflect on what you take away from course lectures, from our Zoom sessions, from your classmates, from your professors, and from other course activities.

Creativity is all around us, so share your observations of imaginative signs, cards, movies, games, TV shows, and even simple examples of creativity like puns. You can also include your takeaways from other sources of information about creative thinking, including YouTube videos, podcasts, blogs, books, articles, and websites. Finally, include your reflections about any conversations about creative problem solving or creativity in general that you have with friends, family, or co-workers.

Reflection is an effective way to improve your metacognition—your ability to think about your thinking. The ultimate purpose is growth as a creative critical thinker.

Avoid writing in text-speak with its almost comical abbreviations, but your log will be judged for the depth of your thoughts, not writing mechanics. Go beyond making simple observations; instead, analyze, synthesize, evaluate, and use all the other higher order thinking skills all of us are blessed to have. If you follow these guidelines you will earn 100 points for each week's log.

To record your entries, you will be given a templated Google Doc that will remind you about the varying requirements for log reflections. Although you do not need to make entries every day of the week, do not wait until Sundays (the end of our academic weeks) to make all of your entries for that week. Your instructors will be reviewing your entries and providing comments, offering advice, and sharing resources.

Points are also awarded for adding illustrations, cartoons, pictures, mind maps, and other visuals, including links to TED Talks, YouTube videos and other media. If you use a paper format, take

pictures of your entries and embed those pictures in your Google Doc Log in the order you want them to be read.

**No later than each Sunday night, complete each level's self-evaluation at the end of your reflections, download your entire Google Doc Log up to that point as a PDF file and submit that document in the pertinent assignment upload link in Blackboard.**

**Please do not submit your log before Friday because doing so will defeat its purpose.**

**The final weekly version of your logs will be evaluated according to the following rubric:**

1. Journal entries are organized in a logical way that makes them easy to follow. (25 pts.)
2. Embedded links to multimedia and visuals like drawings, pictures, cartoons, and mind maps illustrate key reflections and observations. (25 pts.)
3. Entries reflect a high degree of critical thinking, metacognition, and insight in applying, analyzing, and evaluating key course concepts and theories from readings, lectures, media, discussions activities, and/or assignments. (25 pts.)
4. Entries demonstrate significant personal growth in creative problem skill development. (25 pts.)



## **Creative Activities (including Bonus Points)**

Most weeks you will be asked to complete creative activities. The **A** activity is required and earns 100 points, while the **B** activity is optional and can earn you up to 25 bonus points. These activities are meant to broaden your perspectives about what it means to be creative, sharpen your ability to observe creativity all around you, and power your creative journey. You will find that it is much easier to turn on the creative juices when you have to if you find little ways to be creative and to observe creativity in your daily life.

If a creative activity requires that anything be uploaded into Blackboard, you will find a link for that submission at the bottom of that week's level in the section titled *Level X Links to Resources and Assignments*.

Creative activities are unique so each one will have its own rubric. That rubric will be included in the template for the activity except for Level 1.

Creative Activity A for Level 1 involves the completion of the FourSight Thinking Skills Profile and earns 100 points automatically when you report the results of that profile in the designated Level 1 Creative Activity A assignment upload link.

You can see the rubric for Level 1 Creative Activity B in this syllabus in the information about the *Meet Your Fellow Passengers* discussion forum.

Also remember to reflect on your experiences completing each creative activity in your log (journal).



## **Course Lectures and Accompanying Quizzes**

You will find multimedia lectures in Levels 1-7 in the sections titled *Level X Links to Resources and Assignments*. These lectures are in video, audio, and text formats so use whichever medium meets your needs or your learning style preferences. Lectures share information about creativity myths, mindsets, enhancers, and roadblocks, information about creativity models and tools, information about the stages in the FourSight CPS process, and information about the best strategies for persuading others.

In the same *Links* section of each level that includes a lecture you will find a mandatory five-question auto-grading quiz on that lecture. These quizzes represent some of the obstacles mentioned earlier and can result in as much as a five-point deduction from the points you earn that week (one point for each quiz question missed). Quizzes can be taken only once but are not timed. You can use any resource to complete them except other humans.





## CPS Facilitation Projects

In levels 8 and 11 you will facilitate creative problem-solving sessions involving groups of 3-5 people. These represent the two major assignments in our course and will earn you 250 points each. **You may collaborate with a classmate on either of these two projects and are encouraged to do so.** If you do work with a partner, each person should submit the same completed facilitation template.

Your groups can include friends, family, co-workers, and classmates, and children if they are old enough to understand what is happening and can genuinely contribute ideas. You can even involve group members virtually by using webinar software like Google Hangouts, Zoom, or Skype. You are not expected to perfect your creative problem-solving skills in these sessions, which may be your first attempts in CPS facilitation. Once again, the growth of those skills is what matters in our course.

In Level 8, your CPS Facilitation Session should focus on a personal (yours or someone else's) goal, challenge, opportunity, or problem you would like your group's help with. You will take your group through the stages of the FourSight Creative Problem-Solving Process: Clarification, Ideation, Development, and Implementation. You will be learning about these four stages in Levels 2-5 and we will practice an entire CPS facilitation in our Level 7 Zoom session.

In Level 11, your CPS Facilitation Session should focus on an organizational goal, challenge, opportunity, or problem. The organization can be a company, an institution, a government agency, or a church or other non-profit.

## First CPS Facilitation (Due by 3/24; 250 points)

You will find a template for planning and reporting on your first facilitation session in the Links section of Level 8. Also remember to reflect on what you learned planning and facilitating this session in the Level 8 log.

First CPS Facilitation Grading Criteria (see template for more details)

1. Clarification Stage (50 points)
2. Ideation Stage (50 points)
3. Development Stage (50 points)
4. Implement Stage (50 points)

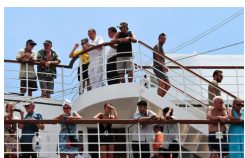
5. Persuasion Practices (50 points)  
**Total Possible (250 points)**

## Second CPS Facilitation (Due by 4/21; 250 points)

You will find a template for planning and reporting on your second facilitation session in the Links section of Level 11. Also remember to reflect on what you learned planning and facilitating this session in the Level 11 log.

Second CPS Facilitation Grading Criteria (see template for more details)

1. Clarification Stage (50 points)  
 2. Ideation Stage (50 points)  
 3. Development Stage (50 points)  
 4. Implement Stage (50 points)  
 5. Persuasion Practices (50 points)  
**Total Possible (250 points)**



### Meet Your Fellow Passengers Discussion Forum

Some online courses require students to participate in weekly written discussion forums. Because we are meeting in Zoom frequently, these forums are not necessary in our course with one exception.

Please share your bio in the *Level 1 Meet Your Fellow Passengers Forum*.. You will earn up to 50 points for your post and the following rubric will be used to evaluate your post:

**40-50 points**—post includes *at least* the following: experiences with creativity, passions, fears, hopes, skills

**30-39 points**—post includes all of the above except experiences with creativity

**20-29 points**—post includes up to three of the above five elements

**10-19 points**—post includes two of the above elements

**1-9 points**—post includes one of the above elements

**0 points**—post not submitted at all or late without an extension request

You can also earn Level 1 bonus points by adding the following to your post:

- creative media like an animation, song, skit, dance, audio with special effects, or illustrated video (up to 25 bonus points)
- a non-creative talking head video or simple audio recording (up to 15 bonus points)
- a picture, drawing, illustration, or mind map (up to 10 bonus points)



### Game Points-To-Grades Conversion Chart

Evaluation in creative studies involves both formative (used to guide learning) and summative (used for final assessment of learning) approaches. CRS 559 includes a variety of ways to achieve success according to your motivation, energy and effort (objective quizzes, log (journal) writing, personal contributions to Zoom sessions, completion of creative activities, and facilitation projects. Final grades are based on a criterion-referenced system that reflects both adequate completion AND quality work.

**Final letter grades are awarded by calculating the percentage of points earned from the course total, which is 3250.**

93-100% = A (3250-3022 pts)	90-92.9% = A- (3021-2925)	
87- 89.9% = B+ (2924-2827)	83-86.9% = B (2826-2697)	80-82.9 = B- (2696-2600)
77-79.9% = C+ (2599- 2502)	73-76.9% = C (2501-2372)	70-72.9 = C- (2371-2275)
67-69.9% = D+ (2274-2177)	60-66.9 = D (2176-1625)	59- E (1624 or fewer points)

*Note: Remember that you can earn a total of 250 bonus points by completing optional B creative activities in levels 1-9 and 11. You can also lose up to 50 obstacle points, mostly by missing lecture quiz questions.*



## Synchronous Session Agendas

## January 29 Course Introduction

Topics:

- Discuss FourSight Profile
- Discuss Level 1 Lecture on Creativity Myths/Mindsets/Enhancers/Obstacles
- Discuss Syllabus
- Discuss Game Mechanics and Course Layout
- Creative activities
- Group camaraderie activities
- Questions answered

## February 5 Clarification

- Discuss Level 2 Lecture on Clarification stage of FourSight
- Creative activities
- Group camaraderie activities
- Questions answered

## February 12 Ideation

- Discuss Level 3 Lecture on Ideation stage of FourSight
- Creative activities
- Group camaraderie activities
- Questions answered

## February 19 Development

- Discuss Level 4 Lecture on Development stage of FourSight
- Creative activities
- Group camaraderie activities
- Questions answered

## February 26 Implementation

- Discuss Level 5 Lecture on Implementation stage of FourSight
- Creative activities
- Group camaraderie activities
- Questions answered

## March 12 Review of FourSight CPS Process

- Discuss Level 7 Lecture on the FourSight CPS Process
- Practice upcoming first CPS Facilitation Project
- Questions answered

## April 2 **FourSight CPS Practice**

- Practice upcoming second CPS Facilitation Project
- Creative activities
- Group camaraderie activities
- Questions answered

## April 23 **Game Awards Night**

Topics:

- Discuss overall experiences in our course
- Distribute Game Awards

## Syllabus Appendix A: Course Calendar



### Game Timetable

#### First Week (1/25 to 2/3)

Friday 1/25	Mon. 1/28	Tue. 1/29	Fri. 2/1	Sun. 2/3 (by 11:59 p.m. your time)
<ul style="list-style-type: none"> <li>Course available in Blackboard</li> <li>Level 1 opens</li> </ul>	<ul style="list-style-type: none"> <li>1<sup>st</sup> official day of course</li> </ul>	<ul style="list-style-type: none"> <li>Zoom Session 6-8 pm ET</li> <li>Lev 1 Quiz due by start of class</li> </ul>	<ul style="list-style-type: none"> <li>Earliest day log <i>may</i> be uploaded in Blackboard</li> <li>Lev 2 opens</li> </ul>	<ul style="list-style-type: none"> <li>Creative Activity A due in Blackboard</li> <li>Optional Creative Activity B due in Blackboard</li> <li>Level 1 log (journal) due in Blackboard if not submitted earlier</li> <li><i>Meet Your Fellow Passengers</i> discussion forum post due</li> </ul>

#### Second Week (2/4-2/10)

Tue. 2/5	Fri. 2/8	Sun. 2/10 (by 11:59 p.m. your time)
<ul style="list-style-type: none"> <li>Zoom Session 6-8 pm ET</li> <li>Lev 2 Quiz due by start of class</li> </ul>	<ul style="list-style-type: none"> <li>Earliest day Level 2 log <i>may</i> be uploaded in Blackboard</li> <li>Lev 3 opens</li> </ul>	<ul style="list-style-type: none"> <li>Level 2 Creative Activity A due in Blackboard</li> <li>Lev 2 Optional Creative Activity B due in Blackboard</li> <li>Level 2 log (journal) due in Blackboard if not uploaded earlier</li> </ul>

#### Third Week (2/11-2/17)

Tue. 2/2	Fri. 2/15	Sun. 2/17 (by 11:59 p.m. your time)
<ul style="list-style-type: none"> <li>Zoom Session 6-8 pm ET</li> <li>Lev 3 Quiz due by start of class</li> </ul>	<ul style="list-style-type: none"> <li>Earliest day Level 3 log <i>may</i> be uploaded in Blackboard</li> <li>Lev 4 opens</li> </ul>	<ul style="list-style-type: none"> <li>Level 3 Creative Activity A due in Blackboard</li> <li>Lev 3 Optional Creative Activity B due in Blackboard</li> <li>Level 3 log (journal) must be uploaded into Blackboard if not uploaded earlier</li> </ul>

**Fourth Week (2/18-2/24)**

Tue. 2/19	Fri. 2/22	Sun. 2/24 (by 11:59 p.m. your time)
<ul style="list-style-type: none"> <li>Zoom Session 6-8 pm ET</li> <li>Lev 4 Quiz due by start of class</li> </ul>	<ul style="list-style-type: none"> <li>Earliest day Level 4 log <i>may</i> be uploaded in Blackboard</li> <li>Lev 5 opens</li> </ul>	<ul style="list-style-type: none"> <li>Level 4 Creative Activity A due in Blackboard</li> <li>Lev 4 Optional Creative Activity B due in Blackboard</li> <li>Level 4 log (journal) must be uploaded into Blackboard if not uploaded earlier</li> </ul>

**Fifth Week (2/25-3/3)**

Tue. 2/26	Fri. 3/1	Sun. 3/3 (by 11:59 p.m. your time)
<ul style="list-style-type: none"> <li>Zoom Session 6-8 pm ET</li> <li>Lev 5 Quiz due by start of class</li> </ul>	<ul style="list-style-type: none"> <li>Earliest day Level 5 log <i>may</i> be uploaded in Blackboard</li> <li>Lev 6 opens</li> </ul>	<ul style="list-style-type: none"> <li>Level 5 Creative Activity A due in Blackboard</li> <li>Lev 5 Optional Creative Activity B due in Blackboard</li> <li>Level 5 log (journal) must be uploaded into Blackboard if not uploaded earlier</li> </ul>

**Sixth Week (3/4-3/10)**

Tue. 3/5	Fri. 3/8	Sun. 3/10 (by 11:59 p.m. your time)
<ul style="list-style-type: none"> <li>No Zoom Session</li> <li>Lev 6 Quiz due</li> </ul>	<ul style="list-style-type: none"> <li>Earliest day Level 6 log <i>may</i> be uploaded in Blackboard</li> <li>Lev 7 opens</li> </ul>	<ul style="list-style-type: none"> <li>Level 6 Creative Activity A due in Blackboard</li> <li>Lev 6 Optional Creative Activity B due in Blackboard</li> <li>Level 6 log (journal) must be uploaded into Blackboard if not uploaded earlier</li> </ul>

**Seventh Week (3/11-3/17)**

Tue. 3/12	Fri. 3/15	Sun. 3/17 (by 11:59 p.m. your time)

<ul style="list-style-type: none"> <li>• Zoom Session 6-8 pm ET</li> <li>• Lev 7 Quiz due by start of class</li> </ul>	<ul style="list-style-type: none"> <li>• Earliest day Level 6 log <i>may</i> be uploaded in Blackboard</li> <li>• Lev 8 opens</li> </ul>	<ul style="list-style-type: none"> <li>• Level 7 Creative Activity A due in Blackboard</li> <li>• Lev 7 Optional Creative Activity B due in Blackboard</li> <li>• Level 7 log (journal) must be uploaded into Blackboard if not uploaded earlier</li> </ul>
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### Eighth Week (3/18-3/24)

Tue. 3/19	Fri. 3/22	Sun. 3/24 (by 11:59 p.m. your time)
<ul style="list-style-type: none"> <li>• No Zoom Session</li> </ul>	<ul style="list-style-type: none"> <li>• Earliest day Level 8 log <i>may</i> be uploaded in Blackboard</li> <li>• Lev 9 opens</li> <li>• Level 10 opens</li> </ul>	<ul style="list-style-type: none"> <li>• Level 8 Creative Activity A (1<sup>st</sup> CPS Facilitation Project) due in Blackboard</li> <li>• Lev 8 Optional Creative Activity B due in Blackboard</li> <li>• Level 8 Obstacle due in Log</li> <li>• Level 8 log (journal) must be uploaded into Blackboard if not uploaded earlier</li> </ul>

### Spring Break (3/25-3/31)--No activities

### Ninth Week (4/1-4/7)

Tue. 4/2	Fri. 4/5	Sun. 4/7 (by 11:59 p.m. your time)
<ul style="list-style-type: none"> <li>• Zoom Session 6-8 pm ET</li> </ul>	<ul style="list-style-type: none"> <li>• Earliest day Level 9 log <i>may</i> be uploaded in Blackboard</li> <li>• Lev 11 opens</li> <li>• Lev 12 opens</li> </ul>	<ul style="list-style-type: none"> <li>• Level 9 Creative Activity A due in Blackboard</li> <li>• Lev 9 Optional Creative Activity B due in Blackboard</li> <li>• Level 9 log (journal) must be uploaded into Blackboard if not uploaded earlier</li> </ul>

### Tenth Week (4/8-4/14)—No activities; Prep time for 2<sup>nd</sup> CPS Facilitation Project

### Eleventh Week (4/15-4/21)

Tue. 4/16	Fri. 4/19	Sun. 4/21 (by 11:59 p.m. your time)
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<ul style="list-style-type: none"> <li>No Zoom Session</li> </ul>	<ul style="list-style-type: none"> <li>Earliest day Level 11 log <i>may</i> be uploaded in Blackboard</li> </ul>	<ul style="list-style-type: none"> <li>Level 11 Creative Activity A (2nd CPS Facilitation Project) due in Blackboard</li> <li>Lev 11 Optional Creative Activity B due in Blackboard</li> <li>Level 11 Obstacle due in Log</li> <li>Level 11 log (journal) must be uploaded into Blackboard if not uploaded earlier</li> </ul>
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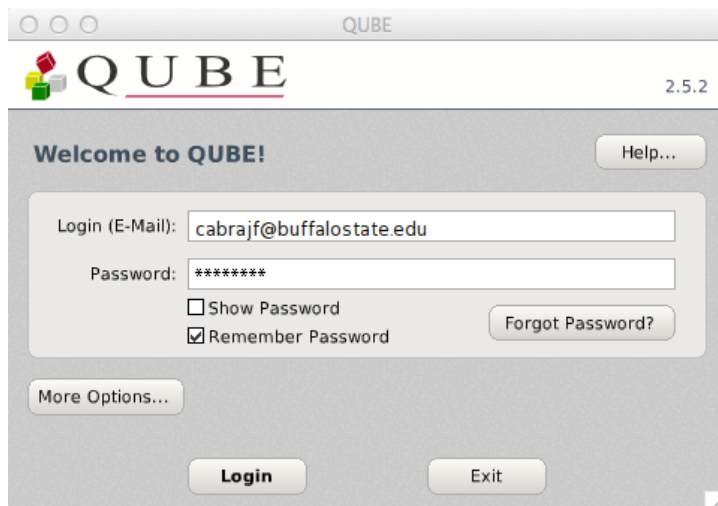
### Twelfth Week (4/22-4/23)

Tue. 4/23
<ul style="list-style-type: none"> <li>Awards distributed in final Zoom Session 6-8 pm ET</li> </ul>

## Syllabus Appendix B: Qube Instructions

### Installing Qube

- Download the appropriate software for your computer from <http://us.virtualinnovationlab.com/client/> If you are using a Windows machine, the file will automatically be installed. If you are using a Macintosh, the file will be unzipped, and you will then need to copy the file into your Application folder.
- Start the Qube program by double clicking on its icon. **When the program starts, you should see an image like this.**



- Finally, click the Login button.
- Be on the look out for an invitation to access one of the virtual rooms. The notice will come from a company called KnowInnovation.
- Once you are in, look for a virtual room called CRS 559 Principles of CPS.
- To get better performance, it would be worth investing in an ethernet cable in case your wireless is not consistent. You can connect it to your laptop/desk top and router.
- You will also need headsets to eliminate echo.

## Keyboard shortcuts

<b>Action</b>	<b>Key (PC / Mac)</b>
Turn left	Left arrow
Turn right	Right arrow
Move forward	Up arrow
Move backwards	Down arrow
Stand up / sit down	T
Slide left	Q
Slide right	E
Move forward	W
Move backwards	S
Look Down	R
Look up	C
Look Straight Ahead	F
Spin Left	A
Spin Right	D
Nod agreement	Y
Shake head - disagree	N
Bow - greeting	B
Move between landmarks (in order)	Tab
Move between landmarks (in reverse)	Shift + Tab
Zoom in / zoom out	Scroll wheel or 2 fingers
Fly up	Page Up / Fn + Up
Fly down	Page Down / Fn + Down
Move to Bird's Eye Landmark	End / Fn + Right
Move to Home Landmark	Home / Fn + Left
Jump	Space

Video for a Quixndbe Orientation Tour: <http://youtu.be/ZszTJE-EA6I>

## Appendix B

### Blackboard Screen Shots of Each Section of a Game Level

#### Level 1--FourSight Falls--Jan. 28 to Feb. 3

[Alignments](#)



#### Level 1 Data

**Dates--Jan. 28 To Feb. 3**

**Points Needed to Complete Level 1: 350**

**Bonus Points Possible in Level 1: 25**

**Total Points Possible in Level 1: 375**

**Possible Level 1 Deductions: 1-5 Points**



## Level 1 Tasks

- Level 1 Creativitive Activity A--Complete the FourSight Profile by 1/29 (100 pts)
- View, read, or listen to the two Level 1 Lectures by 1/29
- Complete the Level 1 Lecture Quiz by 1/29
- Make entries all week into personal log in Google Docs (up to 100 pts)
  - reflect what you learned by taking the FourSight Profile
  - reflect on what you learned from the Level 1 Lectures
  - reflect on what you learned from the Level 1 Zoom Session
  - reflect on your growth as a creative person during Level 1
- Submit your Bio in the Meet Your Fellow Passengers Discussion by 2/3 (50 pts)
- Participate interactively in the Level 1 Zoom Session 1/29 (up to 100 pts)
  - **Level 1 Zoom Session Topics:**
    - Discuss FourSight Profile
    - Discuss Level 1 Lectures on Creativity Myths/Mindsets/Enhancers/Obstacles
    - Discuss Syllabus
    - Discuss Game Mechanics and Course Layout
    - Creative activities
    - Group camaraderie activities
    - Questions answered



## Level 1 Bonus Points for Creativitive Activity B--adding media to your bio post

- Up to 25 points for adding creative media like an animation, song, skit, dance, or illustrated video
- Up to 15 points for adding a non-creative talking head video or audio
- Up to 10 points for adding a picture, drawing, illustration, or mind map



## Level 1 Obstacle--Look Out for Rocks Below the Falls!

Mandatory five-question auto grading quiz on the Level 1 Lectures. Quiz must be completed by the start of the Level 1 Zoom session. You lose 1 point for each question missed but this quiz is not timed and you may use any source other than other humans.



## Links to Level 1 Resources & Assignments

[Take The FourSight Profile \(Level 1 Creative Activity A\)](#)

[Submit Your FourSight Profile Results here](#)

[Participate in the Meet Your Fellow Passengers Discussion](#)

[Download Level 1 Creative Activity B Directions.pdf](#)

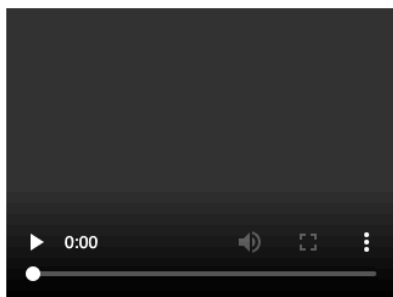
[Submit Level 1 Creative Activity B copy of your creative media for the Meet the Passengers Discussion here](#)

[Take the Level 1 Lecture Quiz](#)

To Participate in the Level 1 Zoom Session, Paste this link into your Internet browser: <https://zoom.us/j/462077538>

## Level 1 Lectures in Video, Audio, and PDF Formats

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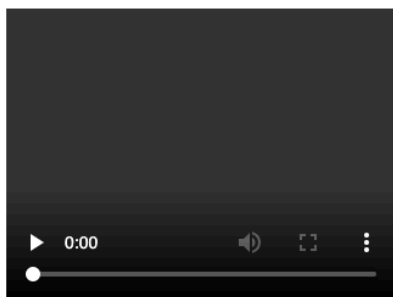
Level 1 Lecture on Creativity Myths and Mindsets (Video Version):



Level 1 Lecture on Creativity Myths and Mindsets (audio version)

[Creativity Myths and Mindsets Lecture\\_text version .pdf](#)

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Level 1 Lecture on Creativity Enhancers and Roadblocks (Video Version)



Level 1 Lecture on Creativity Enhancers and Roadblocks (Audio Version)

[Creativity Enhancers And Roadblocks Lecture Text Version.pdf](#)

## Appendix C

### Screen Capture of Blackboard Course Page for All 12 Levels

#### Game Levels



[Level 1--FourSight Falls--Jan. 28 to Feb. 3](#)



[Level 2--Clarification Cove--Feb. 4-10](#)



[Level 3--Ideation Island--Feb. 11-17](#)



[Level 4--Dunes of Development--Feb. 18-24](#)



[Level 5--Implementation Inlet--Feb. 25-March 3](#)



[Level 6--Puccio Peninsula of Persuasion--March 4-10](#)



[Level 7--Parnes Process Promontory--Mar. 11-17](#)



[Level 8--Torrance Tidal Pool--March 18-24](#)



[Level 9--Cabra Canyon--April 1-7](#)



[Level 10--Osborn Oasis Game Break--April 8-14](#)



[Level 11--Ruth Noller Rapids--April 15-21](#)



[Level 12--Firestein Fireworks Finale Awards--April 22-28](#)

## Appendix D

### **Template for CRS 559 Level 11, Creative Activity A: Facilitating A CPS session for an organization's Challenge, Goal, Problem, or Opportunity**

**Directions:** In level 11 you will facilitate a creative problem-solving session involving a group of 3-5 people who will help you assist an organization. You may collaborate with a classmate and are encouraged to do so. If you do work with a partner, each person should submit the same completed facilitation template below.

Your facilitation group can include friends, family, co-workers, and classmates, and children if they are old enough to understand what is happening and can genuinely contribute ideas. You can even involve group members virtually by using webinar software like Google Hangouts, Zoom, or Skype.

You are not expected to perfect your creative problem-solving skills in this session. Once again, the growth of those skills is what matters in this activity and in our course.

In Level 11, your CPS Facilitation Session should focus on an organization's goal, challenge, opportunity, or problem. Your target organization may be a for-profit company, a non-profit agency, a church, an educational institution, or a government department. You will take your group through the stages of the FourSight Creative Problem-Solving Process: Clarification, Ideation, Development, and Implementation.

Before each of these four stages, be sure to hold a warm-up or icebreaker activity designed to encourage participants to think creatively.



**Complete the Template and Self-Evaluation below and submit this document in Microsoft Word format in the designed upload link for Level 11 Creative Activity A.**

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## **Clarification Stage**

**Organization You Assisted:**

**Teammate (if any):**

**Names of facilitation group members:**

**Pre-Clarification Stage Warm-Up or Icebreaker Activity:**

**Section 1: State your initial visionary challenge statement using wording in the form of a wish statement like “It would be great if our organization could...”**

**Section 2: Gather Data on your organization’s Goal, Challenge or Problem**

- **Who** are the individuals or groups involved in or affected by the goal, challenge, problem?
- **What** has already been done to achieve the goal, meet the challenge, take advantage of the opportunity, or solve the problem?
- **Why** do individuals or organizations want to achieve the goal, meet the challenge, take advantage of the opportunity, or solve the problem?
- **When** should the goal be achieved, the challenge met, the opportunity seized, or the problem solved?
- **Where** are any pertinent physical locations?
- **How** do you expect to achieve the goal, meet the challenge, or solve the problem?

Describe the specific strategies your facilitation team used to gather the above data:

**Section 3: State your revised positive, reasonably specific (but without numbers yet), and concise challenge statement in the form of a question that begins “In what ways might our organization...”**

**Section 4: Add any desired specific numerical targets to your revised challenge statement:**

**Section 5: Restate your revised Challenge Statement from Section 3 of the clarification stage adding or omitting specific numerical targets:**

---

## **Ideation Stage**

**Pre-Ideation Stage Warm-Up or Icebreaker Activity:**

**Directions: Using one or more of the ideation tools described in the Level 3 Lectures, generate at least 30 ideas that would help your chosen organization meet a challenge, solve a problem, reach a goal, or take advantage of an opportunity.**

**When generating ideas, remember to follow the ground rules for Divergent Thinking:**

- 1. Defer Judgment**
- 2. Strive for Quantity**
- 3. Seek wild and unusual ideas**
- 4. Build on other ideas/make connections**

**Section 6: Which ideation tool(s) did you choose to generate ideas for your organization’s challenge, problem, opportunity or goal:**

**Section 7: What was your rationale for using that tool or those tools?**

**Section 8: List as many ideas as you were able to generate using your chosen tool(s):**

**Section 9: Cluster the ideas into logical groups of related or similar ideas and list and label the clusters here:**

**Section 10: Select the most promising cluster and phrase a positive, concise challenge statement that begins with “It would be great if...”**

## **Development Stage**

**Pre-Development Stage Warm-Up or Icebreaker Activity:**

**Directions: Use a convergent thinking tool like Highlighting/Clustering, Hits and Misses, or Card Sort to narrow the ideas generated in Section 10 of the Ideation Stage previous stage into a manageable number.**

**Then use an Idea Development tool like POINT, the Evaluation Matrix, Design Thinking, SWOT, or Targeting to develop the best idea(s) into a feasible solution.**

**When using convergent thinking, remember to observe the following Ground Rules:**

- 1. Apply affirmative judgment and keep the CPS process positive.**
- 2. Be deliberate and avoid snap decisions or harsh judgments.**
- 3. Review your original objectives and stay on the desired path.**
- 4. Think about how you might improve, hone, and strengthen ideas rather than prematurely reject any of them.**
- 5. Keep novelty alive by remaining open to new approaches.**

**Section 11: Which convergent thinking tool did you use to narrow and/or cluster the ideas for your challenge, problem, opportunity or goal?**

**Section 12: Review Level 4 Lecture A for examples and phrase a positive, concise, and specific challenge statement for your modified cluster that begins with “We can see ourselves doing ...” (see Level 4 Lecture A for examples):**

**Section 13: Use one or more of the Idea Development tools like POINT, the Evaluation Matrix, Design Thinking, SWOT, or Targeting to turn one or more of your most promising ideas into promising solutions. List the tool(s) you used here and identify the specific ways you developed/improved/expanded your idea(s). You may insert images of charts you used for tools like the Evaluation Matrix:**

## **Implementation Stage**

**Pre-Implementation Stage Warm-Up or Icebreaker Activity:**

**Directions: Construct an action plan for implementing the best idea(s) you improved in the Development Stage.**

**Begin your plan with a starter statement phrased according to the advice about implementation starter statements in the Level 5 Lecture.**

**Your starter statement should include the specific idea or ideas you will be implementing and include phrasing like “We are committed to...”**

**Create a How-How diagram when developing your action plan.**

**Construct a timeline chart that indicates when the steps in your plan will be completed, by which team member, and to whom the completion of each step will be reported.**

**Design a dashboard that will be used to measure progress on your plan and to motivate those affected by your plan.**

**Use the Assisters and Resisters tool and the Stakeholder Analysis tool to modify your Implementation Action Plan so it includes specific ways to persuade others to accept your creative idea(s).**

**Section 14: What is your Implementation Starter Statement?**

**Section 15: Insert your How-How diagram here:**

**Section 16: Insert your Implementation Timeline chart here:**

**Section 17: Insert your Performance Dashboard here:**

**Section 18: Use the Assisters/Resisters tool to identify the whole departments, organizations, laws, forces, or conditions that will affect the success of your implementation:**

**Section 19: Use the Stakeholder Analysis Tool to create a chart that illustrates where influential stakeholders are in terms their support of your implementation:**

**Section 20: List the stakeholder universal or secondary values you need to account for during your implementation:**

**Section 21: List the persuasion strategies you or your team will need to use during your implementation (slides 20-31 in Part 2 of the Implementation Lecture:**

**Section 22: Explaining your answer, will you be using a threats approach, an opportunities approach, or a combination of the two?**

**Section 23: Modify the Action Plan/Timeline from Section 3 to account for what you need to move any stakeholders who will affect your implementation. Insert your revised Action Plan/Timeline Here:**

**Level 11 Creative Activity A Self-Evaluation Rubric  
(complete before submitting)**

\_\_\_\_\_/50 pts Clarification Stage (including warm-up activity)

\_\_\_\_\_/50 pts Ideation Stage (including warm-up activity)

\_\_\_\_\_/50 pts Development Stage (including warm-up activity)

\_\_\_\_\_/50 pts Implementation Stage (including warm-up activity)

\_\_\_\_\_/50 pts Persuasion Practices

\_\_\_\_\_/250 Total Points

**Self-Evaluation Comments:**

## Appendix E

### Directions and Template for CRS 559 Level 2, Creative Activity B:

#### Taking An Excursion

Take your mind on a journey away from thinking about a goal, challenge, opportunity, or problem to find new possibilities. Neuroscience research reveals that our brains work 24/7 even when we are sleeping or not consciously thinking about something. Taking a mental and/or physical excursion, often called an incubation break, can help you produce more novel solutions than concentrated, more confined thinking does.

Excursions can take many forms. A simple one is to try imagining how different characters from movies, TV shows, books, or history might solve the problem, meet the challenge, achieve the goal, or solve a target problem. You could also take a physical trip to one of your favorite locations, or even an imaginary trip to a dream vacation destination.

#### To get the best out of your excursion experience:

1. Think seriously about your goal, challenge, opportunity, or problem
2. Temporarily put your goal, challenge, opportunity, or problem in the closet
3. Complete your literal or figurative excursion, taking audio, textual, or visual notes about the things you see, hear, smell, touch, or taste. Drawings are fine also. Let your senses take over because they will make experiences more vivid.
4. Return to your goal, challenge, opportunity, or problem and look for connections between it and your excursion.

#### Example Excursion Connection:

Sally needed a better place to study for her exams. Her roommates distracted her and she did not want to go to the library. She needed a new way to think about it so she went on an excursion and saw mushrooms. She pretended she was inside a mushroom. It was cool and damp as though in a cave. The walls were nubby and moist. There was a faint pulse as though the mushroom was breathing – it was a little like a heartbeat...

Sally thought, "Heartbeat... it would be comforting, as though I am in a womb. It would block out other distracting noise. That is what I will do. I will record my heartbeat and then play it back into earphones. Wherever I am will be a place to study.

**After completing your excursion fill in the template below.**

1. What was your initial problem, goal, challenge or opportunity?
2. Did you take a mental excursion or a physical excursion?
3. Where did you go on this excursion and have you been there before?
4. Why did you choose to go to this mental or physical location?
5. Were you alone or traveling with others?
6. Summarize what you saw, heard, tasted, smelled, and felt here: (if you drew pictures, you can take photos of them and insert them here):
7. When you returned to your initial problem, goal, challenge, or opportunity, were you able to generate any creative ideas?
8. Share those ideas here:
9. Do you consider this to have been a worthwhile experience?
10. Explain your answer to #9:

**Rubric for Level 2, Creative Activity B:**

Although we have described the recommended practices for using excursions to generate creative ideas, there is no right or wrong way to focus on a goal, challenge, opportunity, or problem, to then let our minds wander, and to then return to our original focus. Not every excursion will produce novel ideas but excursions can still provide psychological and emotional benefits and are highly recommended as a means of relaxing or reducing stress.

**Upload this completed template into the designated link at the bottom of Level 2.**

For these reasons, you earn the full 25 bonus points for this activity simply by giving it a try.



## Appendix F

### Anonymous Student Survey Responses

Respondent #1 ▾

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Page 1

**Q1**

In what ways did the gamification of CRS 559 help or hinder your CPS skill development?

---

Though I did not really notice the difference between gamification of the course and a week by week syllabus, there were some parts that I did like: the leaderboard; the names of the sessions (made you think about who have made contributions to creativity).

**Q2**

In what ways did the gamification of CRS 559 help or hinder your personal creativity?

---

I liked the pictures. The gamification made me think more about how we can leave the dull approach and have some fun with things.

**Q3**

In what ways could the gamification of CRS 559 be changed to improve the experiences of future students taking the course?

---

There were not that many chances to actually interact with others, but I am not sure if that would have made the course any better. I think that the material by itself is great, so I don't know how the course experience could have been better.

**Q4**

Should other creativity courses also be turned into games? Why or why not?

---

It does underscore that we are focused on "creativity", and so gamification is quite appropriate for creativity courses.

Respondent #2 ▾



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Page 1

**Q1**

In what ways did the gamification of CRS 559 help or hinder your CPS skill development?

The gamification of CRS 559 was unique and it was fun at the same time. It forced me to learn the CPS process and the stages involved which I can utilize at my work environment.

**Q2**

In what ways did the gamification of CRS 559 help or hinder your personal creativity?

The gamification of CRS 559 helped my personal creativity. The Activities B especially was a great outlet to enhance the creative mindset. Those activities allowed me to improve the creative thinking process through external and internal forces.

**Q3**

In what ways could the gamification of CRS 559 be changed to improve the experiences of future students taking the course?

I appreciated how the course was taught but at times I felt the journals was repetitive. Reflections are important in the learning process but to me it was a little overwhelming to have them completed every week.

**Q4**

Should other creativity courses also be turned into games? Why or why not?

I think the other creativity courses should be turned into games because it also forces the instructor to be creative while doing that. The process of putting that together seems challenging to me.

Respondent #3 ▾



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Page 1

Q1

In what ways did the gamification of CRS 559 help or hinder your CPS skill development?

It helped me open up my way of thinking

Q2

In what ways did the gamification of CRS 559 help or hinder your personal creativity?

I dont feel that it hindered me at all.

Q3

In what ways could the gamification of CRS 559 be changed to improve the experiences of future students taking the course?

I think that the way it was done was excellent

Q4

Should other creativity courses also be turned into games? Why or why not?

Yes because I hate busy work

Respondent #4 ▾



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Page 1

**Q1**

In what ways did the gamification of CRS 559 help or hinder your CPS skill development?

Using a game makes the coursework more fun and interesting, which makes it feel less like work.

**Q2**

In what ways did the gamification of CRS 559 help or hinder your personal creativity?

I'm not sure it did either but it brought the perspective that CPS should be an enjoyable, adventurous activity, which makes it more likely to be satisfying.

**Q3**

In what ways could the gamification of CRS 559 be changed to improve the experiences of future students taking the course?

I think it is good as currently structured.

**Q4**

Should other creativity courses also be turned into games? Why or why not?

Hard to say since I haven't taken them but this is an introductory course so it is important to create interest and a few course into the program may be an opportunity to use this method.

Respondent #5 ▾



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Page 1

**Q1**

In what ways did the gamification of CRS 559 help or hinder your CPS skill development?

The idea of turning the class into a game was very creative and kept persons engaged. It did help in my skill development.

**Q2**

In what ways did the gamification of CRS 559 help or hinder your personal creativity?

I think it helped a lot. I was forced to think outside of the box and to generate new ideas.

**Q3**

In what ways could the gamification of CRS 559 be changed to improve the experiences of future students taking the course?

There were a little too many levels that left no space for reading. Maybe less levels and another major project for practicing.

**Q4**

Should other creativity courses also be turned into games? Why or why not?

I have not done enough to say that they should.

Respondent #6 ▾

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Page 1

**Q1**

In what ways did the gamification of CRS 559 help or hinder your CPS skill development?

Not a big fan of games

**Q2**

In what ways did the gamification of CRS 559 help or hinder your personal creativity?

neither did nor did not

**Q3**

In what ways could the gamification of CRS 559 be changed to improve the experiences of future students taking the course?

It felt a bit cheesy

**Q4**

Should other creativity courses also be turned into games? Why or why not?

not sure

Respondent #7 ▾



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Page 1

**Q1**

In what ways did the gamification of CRS 559 help or hinder your CPS skill development?

helped in giving specific instructions through the directions as templates

**Q2**

In what ways did the gamification of CRS 559 help or hinder your personal creativity?

I'm not sure it helped or hindered.

**Q3**

In what ways could the gamification of CRS 559 be changed to improve the experiences of future students taking the course?

provide assistance in using animation tools

**Q4**

Should other creativity courses also be turned into games? Why or why not?

It was the best in giving expectations, there was nothing ambiguous. All courses should be clear

Respondent #8 ▾



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Page 1

**Q1**

In what ways did the gamification of CRS 559 help or hinder your CPS skill development?

I am now better at facilitating workshops. Best of all, I have the tools to work with. This CPS training gave me the authority I needed to be a confident leader in Creativity and Innovation.

**Q2**

In what ways did the gamification of CRS 559 help or hinder your personal creativity?

CRS 559 helped my creativity in two ways:

1. Providing me with tools
2. The flexibility of the course allowed me to daydream a little, thus getting the best ideas. I liked that I did not feel rushed by deadlines for the assignments. Personally, I started at the bottom and feel like I have finished at the top.

**Q3**

In what ways could the gamification of CRS 559 be changed to improve the experiences of future students taking the course?

Every student should get a chance to do an icebreaker.  
These icebreakers could be at the start of the class and after the break. Thus, two students can get to practice the skill every class/level.

**Q4**

Should other creativity courses also be turned into games? Why or why not?

Not sure. more of the same could become boring. However, they do gaming for Activity B.



## Appendix G SUNY OSCQR Rubric

		[OSCQR 3.0]				
		Sufficiently Present	Minor Revision	Moderate Revision	Major Revision	Not Applicable
<i>Estimated time needed for revision:</i>			0 1/2 hour or less	1/2-2 hours	2+ hours	0
1	Course includes Welcome and Getting Started content.	x				
2	An orientation or overview is provided for the course overall, as well as in each module. Students know how to navigate and what tasks are due.	x				
3	Course includes a Course Information area that deconstructs the syllabus for learners in a clear and navigable way.	x				
4	A printable syllabus is available to learners (PDF, HTML).	x				
5	Course includes links to relevant campus policies on plagiarism, computer use, student grievances, accommodating disabilities, etc.	x				
6	Course provides access to campus and Open SUNY resources (technical help, orientation, tutoring).	x				
7	Course information states whether the course is fully online, blended, or web-enhanced.	x				
8	Appropriate methods and devices for accessing and participating in the course are communicated (mobile, publisher websites, secure content, pop-ups, browser issue, microphone, webcam).	x				
9	Course objectives/outcomes are clearly defined, measurable, and aligned to student learning activities and assessments.	x				
10	Course provides contact information for instructor, department, and program.	x				
<b>2. COURSE TECHNOLOGY &amp; TOOLS</b>						
11	Requisite skills for using technology tools (websites, software, and hardware) are clearly stated and supported with resources.	x				
12	Technical skills required for participation in course learning activities scaffold in a timely manner (orientation, practice, and application - where appropriate).	x				
13	Frequently used technology tools are easily accessed. Any tools not being utilized are removed from the course menu.	x				
14	Course includes links to privacy policies for technology tools.	x				
15	Any technology tools meet accessibility standards.	x				
<b>3. DESIGN AND LAYOUT</b>						
16	A logical, consistent, and uncluttered layout is established. The course is easy to navigate (consistent color scheme and icon layout, related content organized together, self-evident titles).	x				
17	Large blocks of information are divided into manageable sections with ample white space around and between the blocks.	x				
18	There is enough contrast between text and background for the content to be easily viewed.	x				
19	Instructions are provided and well written.	x				
20	Course is free of grammatical and spelling errors.	x				
21	Text is formatted with titles, headings, and other styles to enhance readability and improve the structure of the document.	x				
22	Flashing and blinking text are avoided.	x				
23	A sans-serif font with a standard size of at least 12 pt is used.	x				
24	When possible, information is displayed in a linear format instead of as a table.	x				
25	Tables are accompanied by a title and summary description.	x				
26	Table header rows and columns are assigned.	x				
27	Slideshows use a predefined slide layout and include unique slide titles.	x				
28	For all slideshows, there are simple, non-automatic transitions between slides.	x				

4. CONTENT AND ACTIVITIES						
29	Course offers access to a variety of engaging resources that facilitate communication and collaboration, deliver content, and support student learning and engagement.	x				
30	Course provides activities for students to develop higher-order thinking and problem-solving skills, such as critical reflection and analysis.	x				
31	Course provides activities that emulate real world applications of the discipline, such as experiential learning, case studies, and problem-based activities.	x				
32	Where available, Open Educational Resources, free, or low cost materials are used.	x				
33	Course materials and resources include copyright and licensing status, clearly stating permission to share where applicable.	x				
34	Text content is available in an easily accessed format, preferably HTML. All text content is readable by assistive technology, including a PDF or any text contained in an image.	x				
35	A text equivalent for every non-text element is provided ("alt" tags, captions, transcripts, etc.).				x	
36	Text, graphics, and images are understandable when viewed without color. Text should be used as a primary method for delivering information.	x				
37	Hyperlink text is descriptive and makes sense when out of context (avoid using "click here").	x				
5. INTERACTION						
38	Expectations for timely and regular feedback from the instructor are clearly stated (questions, email, assignments).	x				
39	Expectations for interaction are clearly stated (netiquette, grade weighting, models/examples, and timing and frequency of contributions).	x				
40	Students have an opportunity to get to know the instructor.	x				
41	Course contains resources or activities intended to build a sense of class community, support open communication, and establish trust (at least one of the following - Ice-breaker, Bulletin Board, Meet Your Classmates, Ask a Question discussion forums).	x				
42	Course offers opportunities for student to student interaction and constructive collaboration.	x				
43	Students are encouraged to share resources and inject knowledge from diverse sources of information in their course interactions.	x				
6. ASSESSMENT AND FEEDBACK						
44	Course grading policies, including consequences of late submissions, are clearly stated in the course information area or syllabus.	x				
45	Course includes frequent and appropriate methods to assess students' mastery of content.	x				
46	Criteria for the assessment of a graded assignment are clearly articulated (rubrics, exemplary work).	x				
47	Students have opportunities to review their performance and assess their own learning throughout the course (pre-tests, automated self-tests, reflective assignments, etc.).	x				
48	Students are informed when a timed response is required. Proper lead time is provided to ensure there is an opportunity to prepare an accommodation.	x				
49	Students have easy access to a well designed and up-to-date gradebook.	x				
50	Students have multiple opportunities to provide descriptive feedback on course design, course content, course experience, and ease of online technology.	x				

**Permission to Place this Project in the Digital Commons Online**

We hereby grant permission to the International Center for Studies in Creativity at Buffalo State College permission to place a digital copy of the Master's Project, The Gamification of CRS 559—Principles in Creative Problem Solving, as an online resource.

*William David Yates*

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Name

*Dyl Gay*

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Name

April 29, 2019

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Date