



## SYLLABUS

(As of 9/14/2021; Public Version)

<b>Department:</b>	Management, Marketing, and Business Administration
<b>Course Title:</b>	Applied Organization Sustainability
<b>Course Number:</b>	MGT 425
<b>Credit Hours:</b>	3
<b>Instructor's Name:</b>	Christopher A. Craig, Ph.D.

- I. COURSE DESCRIPTION AND PREREQUISITE(S):** The course will provide an introduction to organizational sustainability from a STEM perspective to examine how economic, environmental, and societal factors influence strategic organizational decisions.

**Prerequisite(s):** Junior standing.

## II. COURSE OVERVIEW

If we want a nation where our future leaders, neighbors, and workers have the ability to understand and solve some of the complex challenges of today and tomorrow, and to meet the demands of the dynamic and evolving workforce, building students' skills, content knowledge, and fluency in STEM fields is essential (U.S. Department of Education, 2021: par. I).

As future members of the workforce, it is of utmost importance for business students to understand and apply STEM skills. The understanding and application of STEM skills will allow students to contribute to complex challenges, many of which are related to sustainability. *Applied Organizational Sustainability* is an interdisciplinary course designed and developed to build STEM and sustainability competencies drawing from cross-disciplinary perspectives. The course is divided into five modules that were implemented and evaluated as part of a National Science Foundation (NSF) curricular project at Murray State University, University of Arkansas, and Montana State University Billings from 2017 to 2021:

1. Module I, "Introduction to Sustainability and Sustainable Development," (1) provides an introduction and overview of sustainability and sustainable development, (2) allows students to apply math skills to local sustainability challenges (Exercise 1), and (3) requires students to discuss the international implications of the UN (2021) Sustainable Development Goals for U.S.-based businesses (Group Discussion 1).
2. Module II, "The Geographic Case for Sustainability," takes a geographic perspective to the most salient economic, environmental, and social sustainability challenges along the Yellowstone River Valley. The module is based on the Gilbertz and Hall (2022) book entitled *Bringing Sustainability to the Ground Level: Competing Demands in the Yellowstone River Valley*. Module II requires students to complete a written assignment connecting sustainability challenges along the Yellowstone to comparable local and international challenges (Written Assignment 1).
3. Module III, "Modern Issues and Methods: Weather, Climate, and Sustainability," requires students to utilize science, technology, and math knowledge and skills to investigate the sustainability implications of climate change. Specifically, students will (1) understand the distinctions between weather and climate change, (2) interface with technology to retrieve, manipulate, analyze, and interpret weather and climate data (Exercise 2), and (3) discuss the effects of climate change on the three component areas of sustainability: economic, environmental, social (Group Discussion 2).
4. Module IV, "The Strategic Management Case for Sustainability," requires students to apply math and technology skills to a merged business (i.e., tourism business sales) and science (i.e., weather and climate

data; Exercise 3) dataset to answer strategic management discussion questions from the Craig et al. (2019) case (Case 1 Discussion Questions).

5. Module V, “The Management and Policy Case for Sustainability,” was developed based on one of the most salient sustainability-related challenges to the American West: Wildfire. The Craig (2019) case and accompanying documentary by the History Channel (2000)—*Escape: Fire on Mann Gulch*—about wildfire management requires students to apply environmental engineering knowledge and skills to answer discussion questions about wildland fire management and policy from a communicative perspective (Case 2 Discussion Questions).

### III. COURSE OBJECTIVES:

The student will be able to

- A. demonstrate an in-depth understanding of the economic, environmental, and social components of sustainability using STEM-based evidence;
- B. understand ways in which organizations address issues related to current economic, environmental, and social conditions;
- C. explain how the natural environment influences organizations using an applied approach; and
- D. utilize qualitative and quantitative techniques to address sustainability issues.

### IV. CONTENT OUTLINE:

- A. Introduction to sustainable development
- B. Modern issues and research methods
- C. Sustainable management
- D. Sustainability in a global environment
- E. Developing effective organizational strategy and policy

- V. **INSTRUCTIONAL ACTIVITIES:** This course will utilize a combination of instructional activities including student learning through academic and practitioner-based readings and resources; instructor-to-student learning through presentations and discussions; peer-to-peer learning through small group collaboration; and experiential learning through applied case studies and student research.

### VI. TEXT(S) AND RESOURCES:

Gilbertz, S.J. and D. M. Hall. (2022, in production). *Bringing sustainability to the ground Level: Competing demands in the Yellowstone River Valley*. Foreword by Hoffman, AJ. New York: Business Expert Press.

Additional academic readings, practitioner readings, case studies, and other relevant resources (e.g., videos) will be provided by the instructor. Readings, assignments, and other materials will be accessible via MSU Canvas (<https://murraystate.instructure.com/login>).

### VII. EVALUATION AND GRADING PROCEDURES:

- A. Quizzes / Exams
- B. Applied Exercises
- C. Written Assignments
- D. Participation (Groups / Discussions)

#### Grading Scale:

100%-90% - A  
89% - 80% - B  
79% - 70% - C  
69% - 60% - D  
59% - 0% - E

## VIII. ASSIGNMENT VALUES AND DESCRIPTIONS (250 Points Total):

- A. Quizzes (90 points):** There will be nine quizzes over readings and materials that will be posted to MSU Canvas. Each quiz will consist of five multiple-choice questions worth two points each (10 points). All quizzes are open-note and you will have three minutes to complete each question (15 minutes total). Please be sure to read the required materials and take notes prior to taking quizzes to ensure success. Quizzes will require the use of the Respondus Lockdown Browser + Webcam online proctoring services.
- B. Exercises and Quizzes (30 points):** There will be three quantitative, applied exercises that you will complete during the semester. Once you complete the exercise, you will then take a five-question multiple choice quiz (two points each, 10 points total) answering questions based on your completed exercise. You will only be given three minutes per question to take the quizzes, so it is crucial that you complete the exercise prior to starting the quiz. The quizzes which will require the use of Respondus Lockdown Browser + Webcam online proctoring services.
- C. Case Studies (90 points):** You will complete two case studies during the semester. It is imperative that you complete any associated readings, exercises, or videos prior to completing the written discussion questions to ensure that you are prepared. You will cover cases about sustainability as it relates to: (1) tourism and strategic management (40 points), and (2) wildfire management and policy (50 points). Theoretical and quantitative approaches will be utilized to complete the cases.
- D. Written Assignment: Local and International Sustainability Connections (20 points):** You will explore the case for sustainability along the iconic Yellowstone River during Module 2. Concluding this module, you will conduct research in order to: (1) locate a Kentucky specific environmental issue, (2) locate an international environmental issue, (3) discuss how the issues are related to sustainability, and (4) compare and contrast the issues with sustainability issues along the Yellowstone River.
- E. Group Discussions (20 points):** You will work within small groups to complete exercises (e.g., short assignments, discussions) pertaining to course content. Group collaboration will be conducted in an online setting via MSU Canvas. Group assignments are meant to be thought-provoking and collaborative. Thus, the minimum expectation to get full credit (10 points) for each discussion is to make an initial post by Wednesday 11:59pm and respond to a group member's post by Sunday 11:59pm.
- F. Extra Credit:** There will be one extra credit opportunity during the semester, a 20-question comprehensive extra credit exam over all of the readings covered during the course. You will have three minutes per question (60 minutes total), and each question is worth .5 extra points (up to 10 points total).

## IX. TENTATIVE SCHEDULE

\*Subject to change.

Week	Date	Topic	Readings	Assignment
<b>Module 1: Introduction to Sustainability and Sustainable Development</b>				
1		Introduction to Sustainability and Sustainable Development	Theis and Tomkin (2015) Chapter 1 (Intro to Sustainability)	Reading Quiz 1 (due Sunday 11:59pm) [10 points]
2		Problem-Solving, Metrics, and Tools for Sustainability	Theis and Tomkin (2015): Chapter 9 (through Section 9.3.1.10)  Exercise 1 (via Canvas)	Exercise and Quiz 1: Sustainability Metrics (due Sunday 11:59pm) [10 points]
3		<i>Applying What You Learned</i>  Sustainability in a Global Environment: Sustainable Development Goals	UN (2021): Sustainable Developmental Goals Report (pages 8—25 for overview)	Group Discussion 1: Sustainability in a Global Environment (due Wednesday 11:59pm and Sunday 11:59pm) [10 points]
<b>Module 2: The Geographic Case for Sustainability</b>				
4		Introduction to the Yellowstone River Valley and Economic Sustainability Concerns	Gilbertz and Hall (2022), Chapters 1 and 2	Reading Quiz 2 (due Sunday 11:59pm) [10 points]
5		Yellowstone River Valley Environmental and Social Sustainability Concerns	Gilbertz and Hall (2022): Chapters 3 and 4	Reading Quiz 3 (due Sunday 11:59pm) [10 points]
6		Sustainability Complexities and Community Engagement  <i>Applying What You Learned</i>  Local and International Sustainability Connections to the Yellowstone River	Gilbertz and Hall (2022): Chapters 5 and 6	Written Assignment 1: Local and International Sustainability Connections (due Sunday 11:59pm) [20 points]
<b>Module 3: Modern Issues and Methods: Weather, Climate Change, and Sustainability</b>				
7		Weather, Climate Change, and Observational Data	Schmittner (nd): Chapter 1 (access online; Weather)  Schmittner (nd): Chapter 2 (access online; Observations)	Reading Quiz 4 (due Sunday 11:59pm) [10 points]
8		How to Retrieve, Manipulate, and Analyze Weather and Climate Data	Exercise 2 (via Canvas)	Exercise and Quiz 2: Data Analysis (due Sunday 11:59pm) [10 points]
9		<i>Applying What You Learned</i>  How Does Climate Change Impact the Three Pillars of Sustainability: Economics, Environment, Society?	Reidmiller et al. (2018): 4 <sup>th</sup> National Climate Assessment	Reading Quiz 5 (due Sunday 11:59pm) [10 points]  Group Discussion 2: Reidmiller et al. (2018): 4 <sup>th</sup> National Climate Assessment (posts due Wednesday 11:59pm and Sunday 11:59pm) [10 points]

<b>Module 4: The Strategic Management Case for Sustainability</b>			
10	Understanding Camping and Tourism Climate Resources	Ma, Craig, and Feng (2020)	Reading Quiz 6 (due Sunday 11:59pm) [10 points]
11	Analyzing Weather, Climate, and Camping Tourism Data	Exercise 3 (via Canvas)  Craig et al. (2019): wSWOT Case Study	Exercise and Quiz 3: wSWOT (due 11:59pm) [10 points]
12	<i>Applying What You Learned</i>  Applying the wSWOT Framework to Managerial Decisions: Environmental and Economic Sustainability	Craig et al. (2019): wSWOT Case Study	Case I Discussion Questions (due Sunday 11:59p) [40 points]
<b>Module 5: The Management and Policy Case for Sustainability</b>			
13	Sustainability and Natural Resources: Natural Resource Dependence Theory (NRDT)	Bergmann et al. (2016)	Reading Quiz 7 (due Sunday 11:59pm) [10 points]
14	Discursive Closures: A Roadblock to Social Sustainability Concerns?	Thackaberry (2004)  Discursive Closure Lecture Notes	Reading Quiz 8 (due Sunday 11:59pm) [10 points]
15	Managing Wildfire Disasters: Applying Science, Engineering, Communication, and Management  “Escape: Fire on Mann Gulch” (History Channel, 2020)	Craig (2019) Wildfire Management Case Study  History Channel (2000) Documentary	Reading Quiz 9 (due Sunday 11:59pm) [10 points]
16	<i>Applying What You Learned</i>  Implications for Economic, Environmental, and Social Sustainability  Comprehensive Extra Credit Exam Over Readings	Craig (2019) Wildfire Management Case Study	Case 2 Discussion Questions (due Friday 11:59pm) [50 points]  Extra Credit Exam (due Friday 11:59pm) [up to 10 extra points]
FINALS	<b><u>Finals Week and Commencement</u></b>		

## X. REFERENCES

- Bergmann, A., Stechemesser, K., & Guenther, E. (2016). Natural resource dependence theory: Impacts of extreme weather on organizations. *Journal of Business Research*, 69, 1361–1366.  
<https://doi.org/10.1016/j.jbusres.2015.10.108>
- Craig, C. A. (2019). Managing wildfire disasters in the Rocky Mountains. *The CASE Journal*, 15(3).  
<https://doi.org/10.1108/TCJ-07-2018-0087>
- Craig, C. A., Petrun Sayers, E., Feng, S., & Kinghorn, B. (2019). The impact of climate and weather on a small tourism business: A wSWOT case study. *Entrepreneurship Education and Pedagogy*.  
<https://doi.org/10.1177/2515127419829399>
- Gilbertz, S.J. and D. M. Hall. (2022, in production). *Bringing sustainability to the ground Level: Competing demands in the Yellowstone River Valley*. Foreword by Hoffman, AJ. New York: Business Expert Press.
- History Channel (2000). *Escape: Fire on Mann Gulch* [Documentary]. Posted to MSU Canvas.
- Ma, S., Craig, C. A., & Feng, S. (2020). The Camping Climate Index (CCI): The development, validation, and application of a camping-sector tourism climate index. *Tourism Management*, 80, 104105.  
<https://doi.org/10.1016/j.tourman.2020.104105>
- Reidmiller, D.R., Avery, C.W., Easterling, D.R., Kunkel, K.E., Lewis, K.L.M., Maycock, T.K. & Stewart, B.C. (Eds). (2018). *Impacts, risks, and adaptation in the United States: Fourth National Climate Assessment*. U.S. Global Change Research Program. Washington, D.C. doi:10.7930/NCA4.2018
- Schmittner, A. (2018). *Introduction to climate science*. Retrievable at <http://library.open.oregonstate.edu/climatechange/>. (Available to view online)
- Thackaberry, J. A. (2004). Discursive opening and closing in organizational self-study. *Management Communication Quarterly*, 17(3), 319 – 359. <https://doi.org/10.1177/0893318903259402>
- Theis, T., & Tomkin, J. (2015). *Sustainability: A comprehensive foundation*. Retrievable at <https://open.umn.edu/opentextbooks/textbooks/sustainability-a-comprehensive-foundation>
- U.S. Department of Education. (2020). *Science, Technology, Engineering, and Math including Computer Science*. Retrieved 4/2/2020 from <https://www.ed.gov/stem>.
- United Nations (2021). *Sustainable Development Report*. Retrievable at <https://unstats.un.org/sdgs/report/2021/The-Sustainable-Development-Goals-Report-2021.pdf>