

## **MIST 252 Foundations I**

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**Meeting Room:** SSM 230

**Meeting Times:** Thursdays 9:30 – 12:20 (3 hours weekly)

**Credit:** 4 Units

### **Course Goals**

Solidification and expansion of students' existing knowledge of the important theoretical frameworks and methodological tools for management, innovation, sustainability and technology. The focus will be on reading and evaluating current papers from leading journals. The theory of science and the review process will be briefly discussed. Required of all first-year MIST graduate students. This course may be appropriate for some graduate students in engineering or computer science.

### **Course Learning Outcomes**

By the end of the course, students will be able to

- Reason about interactions in complex systems, including business systems and interactions between human-made and natural systems (PLO 1)
- Apply principles of the triple bottom line accountability system, and corporate, social, and environmental responsibility to understand business systems (PLO 1, 2)
- Apply concepts related value creation to understand business and business ecosystem interactions (PLO 1, 2).
- Demonstrate basic knowledge of strategic innovation in organizations (PLO 1).
- Demonstrate basic knowledge of competitive strategy to public and private settings (PLO 1)

### **Relationship to Program Learning Outcomes and Requirements**

This course aligns with two of the MIST Ph.D. program learning outcomes:

*1. Foundations:* Apply disciplinary concepts and theories for framing and defining research questions and plans from business, management, economics, sociology, psychology, cognitive science, environmental science and engineering.

*2. Methods:* Apply contemporary social science and scientific methods needed to conduct rigorous research in their area of specialization.

Program learning outcomes for the MIST Ph.D. program are directly aligned with the landmarks of Ph.D. training: 1<sup>st</sup> year research project, 2<sup>nd</sup> year research project, comprehensive literature review paper, a written and oral dissertation proposal, and written and oral dissertation defense. Specifically, this course is designed to provide the background and the depth needed for completing the comprehensive research projects leading up to a dissertation.

### **Structure of the Course**

- Students will read important papers and books that are relevant to course topics.
- Students will summarize and reflect on the readings prior to each meeting following the provided questions and guidelines.
- Students will attend class and participate in discussion.
- Students will lead two discussions each.
- Students will complete a final project on a topic related to a set of readings approved by the instructors (including a paper and a presentation).

## Evaluation/Grading System

Grades are based on classroom attendance, classroom participation, contributions to online discussions, and a final paper:

Component	Percent
Participation (including attendance)	14%
Lead Class Discussion (twice)	20%
Write up for Weekly Readings	26%
Final Project (paper and presentation)	40%

## Reading and Writing

Weekly readings are listed on the course schedule below and are available through CatCourses or the UC Merced Library. In the last third of the course, you will choose the readings and lead the discussions.

We will survey literature from a diverse array of disciplines and approaches. It will be useful to be able to categorize and compare them.

Each week, you are required to turn in a summary and synthesis of the readings. This will help you prepare for the class discussion. Thus, in addition to providing a short summary of each reading, please consider the set of readings together and provide a synthesis of them. Each summary should be no longer than a page of text, and the overall synthesis should be at least one page of text.

What follows are some brief questions that will help you organize the readings in relation to each other as the semester progresses. Because the approaches are so diverse, the questions are very general, and you will have to interpret them in the context of each set of readings.

1. What questions are addressed in this literature? (What is this literature good for?)
  - Give a specific example of a problem addressed by this literature.
  - What are the characteristics of questions that are amenable to this approach?
  - What kinds of questions are beyond the scope of this literature?
2. How would an analysis described in this literature be conducted?
  - What kinds of analytical tools are employed to answer the questions identified above?
  - What information is required? How is it obtained?
  - What are some basic assumptions this approach requires?
3. What are the limitations of this framework? What are the strengths?

## Final Project

A large portion of the grade in the course is based on your final project, which combines a paper and presentation on a topic of your choice (determined in collaboration with the instructors). The paper and presentation are due the last day of class, but you should start working on it very early in the semester. The project will require reading and writing on a topic broadly relevant to “management of complex systems”, incorporating at least 20 references that are not on the course reading list.

## Academic Honesty

Students are expected to abide by the UC Merced campus-wide Academic Honesty Policy <http://studentlife.ucmerced.edu/what-we-do/student-judicial-affairs/academicy-honesty-policy>.

## Special Needs

UC Merced provides individuals with disabilities reasonable accommodations to participate in educational programs, activities, and services. Students with disabilities requiring accommodations to meet course requirements should contact the UCM Disability Services Center (<http://disability.ucmerced.edu/>) to obtain assistance and coordination.

## Course Schedule

- **Week 1: Welcome and Organization**
  - No readings for the first week. We will discuss the course and our expectations.
- **Week 2: Complexity I**
  - Simon, H.A. (1996). *The Sciences of the Artificial* (3rd Ed.). MIT Press, Cambridge. [https://monoskop.org/images/9/9c/Simon\\_Herbert\\_A\\_The\\_Sciences\\_of\\_the\\_Artificial\\_3rd\\_ed.pdf](https://monoskop.org/images/9/9c/Simon_Herbert_A_The_Sciences_of_the_Artificial_3rd_ed.pdf)
  - Mitchell, M. (2011). *Complexity: A Guided Tour*. Oxford University Press. <https://ebookcentral.proquest.com/lib/ucm/reader.action?docID=472328> (Chapter 1)
- **Week 3: Complexity II**
  - Arthur, W. B. (1990). Positive feedbacks in the economy. *Scientific American*, 262(2), 92-99. [https://www.jstor.org/stable/24996687?seq=1#page\\_scan\\_tab\\_contents](https://www.jstor.org/stable/24996687?seq=1#page_scan_tab_contents)
  - Boisot, M., & Bill McKelvey. (2011). Complexity and Organization-Environment Relations: Revisiting Ashby's Law of Requisite Variety. *Sage Handbook of Complexity and Management*. Eds: Peter All, Steve Maguire, and Bill McKelvey. Sage.
  - Amaral, L. A. N. & Uzzi, B. (2007). Complex Systems—A New Paradigm for the Integrative Study of Management, Physical, and Technological Systems. *Management Science*, 53(7). <http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=25774490&site=ehost-live>
  - Harrison, D., & Klein, K. (2007). What's the Difference? Diversity Constructs

as Separation, Variety, or Disparity in Organizations. *The Academy of Management Review*, 32(4), 1199-1228. <http://www.jstor.org/stable/20159363>

- **Week 4: Resource Management: Assessment and Scenario Analysis**

- Swart, R.J., Raskin, P. and Robinson, J., 2004. The problem of the future: sustainability science and scenario analysis. *Global environmental change*, 14(2), 137-146. <http://www.homepages.ucl.ac.uk/~ucessjb/S3%20Reading/swart%20et%20al%2004.pdf>
- Duinker, P.N. and Greig, L.A., 2007. Scenario analysis in environmental impact assessment: Improving explorations of the future. *Environmental impact assessment review*, 27(3), 206-219. <https://www.alces.ca/references/download/33/Scenario%20Analysis%20in%20Environmental%20Impact%20Assessment.pdf>
- Weeks, D., Malone, P. and Welling, L., 2011. Climate change scenario planning: a tool for managing parks into uncertain futures. *Park Science*, 28(1), 26-33. [http://training.fws.gov/courses/alc/alc3194/resources/publications/scenario-planning/Weeks\\_et\\_al\\_2011.pdf](http://training.fws.gov/courses/alc/alc3194/resources/publications/scenario-planning/Weeks_et_al_2011.pdf)
- Westerling, A.L., Turner, M.G., Smithwick, E.A., Romme, W.H. and Ryan, M.G., 2011. Continued warming could transform Greater Yellowstone fire regimes by mid-21st century. *Proceedings of the National Academy of Sciences*, 108(32), 13165-13170. <https://www.pnas.org/content/pnas/108/32/13165.full.pdf>
- Westerling, A.L., 2018. Wildfire simulations for California's fourth climate change assessment: Projecting changes in extreme wildfire events with a warming climate. [https://www.energy.ca.gov/sites/default/files/2019-07/Projections\\_CCCA4-CEC-2018-014.pdf](https://www.energy.ca.gov/sites/default/files/2019-07/Projections_CCCA4-CEC-2018-014.pdf)

- **Week 5: Strategy and Business**

- Hagel, J. & Singer, M. (2000). Unbundling the corporation. *Harvard Business Review*. Mar/Apr99, Vol. 77 Issue 2, p133-141. <http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=1613204&site=ehost-live>
- Steward, M. (2010). The Management Myth: Debunking Modern Business Philosophy. *The Atlantic*. <https://www.theatlantic.com/magazine/archive/2006/06/the-management-myth/304883/>
- Felin, T. & Todd R. Zenger. (2017). A Theory-Based View: Economic Actors as Theorists. *Strategy Science*, 2(4): 258-271. <https://pubsonline.informs.org/doi/abs/10.1287/stsc.2017.0048>
- Prahalad, C. K. & Ramaswamy, V. (2000). Co-opting customer competence. *Harvard Business Review*, 78, 79-93. <http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=2628909&site=ehost-live>
- Normann, R. & Ramirez, R. (1993). From value chain to value constellation: Designing interactive strategy. *Harvard Business Review*, 71, 65 – 77. <http://search.ebscohost.com/login.aspx?direct=true&db=bth&AN=9309166477&site=ehost-live>

- **Week 6: Operations and Information Systems**

- Bowman, E. H. (1963). Consistency and Optimality in Managerial Decision Making. *Management Science* 9(2):310-321. <https://doi.org/10.1287/mnsc.9.2.310>
- Banker, R.D., and Kauffman, R. (2004). The Evolution of Research in Information Systems, *Management Science*, 50, 281-198. <https://www.jstor.org/stable/30046067>
- Benbasat, I., and Zmud, R. (1999). Empirical Research in Information Systems: The Practice of Relevance, *MIS Quarterly*, 3-16. <https://www.jstor.org/stable/249403>
- Liu, C., Kemerer, C. F., Slaughter, S. A. & Smith, M. D. (2012). Standards Competition in the Presence of Digital Conversion Technology: An Empirical Analysis of the Flash Memory Card Market, *MIS Quarterly*, 36(3) 921-944. <https://www.jstor.org/stable/41703486>

- **Week 7: Organizations and Behavior**

- Duhigg, C. (2016). What Google Learned from its Quest to Build the Perfect Team. *New York Times Magazine*. Feb 25, 2016. <https://www.nytimes.com/2016/02/28/magazine/what-google-learned-from-its-quest-to-build-the-perfect-team.html>
- Cohen, M. D., March, J. G. & Olsen, J. P. (1972). A garbage can model of organizational choice. *Administrative Science Quarterly*, 17(1), 1-25. <https://www.jstor.org/stable/2392088>
- March, J. G. (1991). Exploration and exploitation in organizational learning. *Organization Science*, 2(1), 71-87. <https://www.jstor.org/stable/2634940>
- Feldman, M. S. & Pentland, B. T. (2003). Reconceptualizing organizational routines as a source of flexibility and change. *Administrative Science Quarterly*, 48(1), 94-118. <https://www.jstor.org/stable/3556620>

- **Week 8: Markets and Marketing**

- Belk, R. (2010). Sharing. *Journal of Consumer Research*, 36(5), 715-734. <http://www.jstor.org/stable/10.1086/612649> .
- Sheth, J. N., Sethia, N., K., & Srinivas, S. (2011). Mindful consumption: a customer-centric approach to sustainability. *Journal of the Academy of Marketing Science*, 39(1), 21-39. <https://link.springer.com/article/10.1007/s11747-010-0216-3>
- Vargo, S. L. & Lusch, R. F. (2004). Evolving to a new dominant logic for marketing. *Journal of Marketing*, 68, 1 – 17. <https://www.jstor.org/stable/30161971>
- Vargo, S. L., Maglio, P. P., and Akaka, M. A. (2008). On value and value co-creation: A service systems and service logic perspective. *European Management Journal*, 26(3), 145-152. <https://doi.org/10.1016/j.emj.2008.04.003>
- TBD

- **Week 9: Resource Management**

- Manning, R. E., Anderson, L. E., & Pettengill, P. (2017). Managing outdoor recreation:

Case studies in the national parks. CABI. (First 3-5 chapters ~ 50 pages + selected park case study mini-chapters).

[https://www.amazon.com/dp/1786391015/ref=cm\\_sw\\_em\\_r\\_mt\\_dp\\_U\\_inZIDbC3VN873](https://www.amazon.com/dp/1786391015/ref=cm_sw_em_r_mt_dp_U_inZIDbC3VN873)

- Cole, D. N., & Yung, L. (Eds.). (2012). Beyond naturalness: rethinking park and wilderness stewardship in an era of rapid change. Island Press. (Chapters 1-5, ~85 pages)  
[https://www.amazon.com/dp/1597265098/ref=cm\\_sw\\_em\\_r\\_mt\\_dp\\_U\\_svYIDbSCB8KT1](https://www.amazon.com/dp/1597265098/ref=cm_sw_em_r_mt_dp_U_svYIDbSCB8KT1)
- Duane, T. P. (1999). Shaping the Sierra: Nature, culture, and conflict in the changing West. Univ of California Press. (First 3 chapters, see attached)  
[https://www.amazon.com/dp/0520212460/ref=cm\\_sw\\_em\\_r\\_mt\\_dp\\_U\\_1eZIDbBWW6ZPT](https://www.amazon.com/dp/0520212460/ref=cm_sw_em_r_mt_dp_U_1eZIDbBWW6ZPT)

- **Week 10: Student-defined Readings (1)**
- **Week 11: Student-defined Readings (2)**
- **Week 12: Student-defined Readings (3)**
- **Week 13: Student-defined Readings (4)**
- **Week 14: Student-defined Readings (5)**
- **Week 15: Project Presentations**