

CE 599
The Management of Disasters and Complex Emergencies
Spring 2019

Sonny Astani Department and Environmental Engineering
University of Southern California
3 Units

Course Syllabus

Lecturer	Lt. Gen. (Ret) Jeffrey W. Talley, Ph.D., P.E., BCEE, D.WRE jwtalley@usc.edu ; 213-740-0636
Class Time	Four On-Campus Sessions (9 AM - 4 PM on Saturday); SOS B47 and 11 Distant Sessions (6 - 7:30 pm on Thursday) via Zoom
Office Hours	One hour after class or by appointment; RGL 330
Teaching Assistant	Eyuphan Koc, Ph.D Student ekoc@usc.edu

I. COURSE DESCRIPTION

Principles of the management of disasters and complex emergencies. Identification of hazards and threats, risk and vulnerability analysis, mitigation techniques, preparedness, response, and recovery operations, the role of the public and private sectors, the impact of international organization and financial institutions, building resiliency, and leveraging technology.

II. COURSE SUMMARY

Natural disasters are becoming more common in the world. In 2017, 574 million people were reportedly affected by natural disasters, the highest in more than a decade. But disasters and crises are not always the result of natural causes. They can also occur in the form of complex emergencies, such as food shortages, disease outbreak, and/or terrorism. Regardless of the cause, the need for governments around the world to prepare for, respond to, and recover from disasters and complex emergencies is greater than ever before.

Further complicating this situation is the growing prediction that the majority of the world's population will live in cities by 2050. How will this population shift effect the impacts of disasters and complex emergencies? How do we build urban resilience? What is the role of smarter cities? With the advances of technologies like cloud, AI, and predictive analytics, how can we leverage these new capabilities across all aspects of the disaster management life cycle?

This course will answer these questions and more. Readings will draw from literature in government and public policy, engineering and technology, business and capital investment, and social work. Case studies and technology spotlights will be used to reinforce discussion around traditional and new approaches to the management of disasters and complex emergencies.

III. LEARNING OBJECTIVES

Students who successfully complete this course will gain a basic understanding of the concepts related to the management of disasters and complex emergencies. The course provides the history, state of practice, and policies of disaster management from the perspective of government, not-for-profit, and business enterprises. The primary objective of this course is to combine the theory of disaster management with the practice of implementing integrated solutions in a variety of settings and applications.

This course will enable students to:

- Understand the principles of the management of disasters and complex emergencies.
- Gain an appreciation for the differing viewpoints of government, not-for-profit, and commercial organizations as it relates to humanitarian assistance and disaster response.
- Be aware of the wide global impact disasters and complex emergencies have on citizens, economies, and nations.
- Learn the role that policy, social, technology, and business play in disaster management.
- Apply critical thinking to previous implemented disaster management solutions through case studies.
- Understand the basics of building urban resiliency and how it can mitigate threats and hazards.
- Develop and present a disaster management research project as part of a team.

IV. STUDENT EVALUATION

The following criteria are used for grading:

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| • Active class participation (on-campus and distance) | 10% |
| • Mid-term exam | 20% |
| • Final exam | 30% |
| • Project presentation and report | 40% |

Total: 100%

Course final grades will be determined using the following scale:

A	93-100
A-	90-92
B+	87-89
B	83-86
B-	80-82
C+	77-79
C	73-76
C-	70-72
D+	67-69
D	63-66
D-	60-62
F	59 and below

V. CLASS PARTICIPATION/GROUP DISCUSSION

Disasters and complex emergencies are becoming common around the globe. The lecture topics include the latest information in research and practice in disaster and crisis preparedness, response, and recovery. Students are highly encouraged to participate in class discussions and to bring up topics of their interest or in the news to class. The instructor will also provide questions and topics for discussions. Students are to participate in discussions individually and in small groups. When group discussions are used, each group will report their thoughts and findings to the class.

VI. GROUP RESEARCH PROJECT

Students will be organized into small group (i.e., approximately 4 students to a group) and conduct an independent research project on a selected topic related to disaster and complex emergencies challenges. This project is a significant part of this course and student evaluation.

The instructor and an external panel of subject matter experts (SMEs) will grade each group's project and presentation. The collective average grade provided by the instructor and the SMEs will count toward the grade for class project/presentation for each group.

The steps in fulfilling the group research project requirement are as follows:

- i) Project Topic Selection
- ii) Project Proposal
- iii) Project Class Presentation
- iv) Paper/Report Submission

The specific requirements and expectations for completion of the group research project are as follows:

i) Project Topic Selection

The topic chosen for the research project may deal with technology, social, policy, and/or governmental/commercial perspectives of Disaster Management and Complex Emergencies. The topic will be selected in consultation with the instructor and the final selection will be with his approval.

In selecting the topic, the group should think beyond presenting simply a history or a literature search. The goal is to think of what innovative and futuristic solutions can be added to a particular topic. The group's research report must ensure proper citation of sources.

For the research project, each group must identify factors that influence outcomes for implementation of recommended actions. The group can choose a topic that is of interest to them and it can be a project that they are working on or intend to develop in the future.

ii) Project Proposal

Each group is required to prepare a project proposal. The proposal is limited to two pages. The proposal shall include the following:

- Name of students in group
- Research project title
- Specific objectives of the research project
- Preliminary outline of research report
- Information on preliminary literature and market research (minimum of twenty recent relevant journal articles or technical reports)

iii) Project Class Presentation

Each group is required to present the research project in a class presentation. The presentation should take no longer than 30 minutes, followed by with a 30-minute period for questions and discussions. The presentation is to be made with slides (Power Point, etc.), videos, or other visual aids.

Students are required to attend all group presentations. The presentations should be looked upon as an opportunity to gain experience making a professional presentation in a supportive environment, among peers.

Presentation Evaluation

Each group will be evaluated on their presentation as follows:

- Quality of visual aids
- Relevance of topic
- Logic of conversation and recommendations
- Degree to which the proposed work is new and novel
- Ability to answer questions
- Overall impression

iv) Final Research Report Format

The report requirements are similar to those found at IBM Center for The Business of Government (see <http://www.businessofgovernment.org>).

The report should include the following sections, in the given order:

- Title page
- Abstract (no longer than 250 words)
- Table of Contents
- Main body of the report including tables, figures, graphs, etc.
- Acknowledgement, in any
- References
- Appendices, if any

All tables, figures, and graphs must be labeled, with sources cited. Use one-inch margins at top, bottom, left, and right. Number pages in lower right corner. Special binding is not required. Additional details and instructions will be made during lectures.

VII. MID TERM AND FINAL EXAMS

Mid Term and final exams will be comprehensive multiple choice of broad topics included in the lectures, class discussions, readings, reference materials, guest lectures, and student presentations.

VIII. REQUIRED TEXTS AND REFERENCES

The reading material for the class include the required text books, instructor's handouts and extensive use on online references provided during lectures. These are discussed and handed out in class.

The following text books are required:

Ref. 1) Damon P. Coppola, *Introduction to International Disaster Management*, 3rd Edition, Butterworth-Heinemann, Elsevier, 2015.

Ref. 2) Abhaus K. Jha, Todd W. Miner, Zuzana Stanton-Geddes, Editors, *Building Urban Resilience: Principles, Tools, and Practice*, The World Bank, 2013.

IX. COURSE OUTLINE AND SCHEDULE OF TOPICS

Date	Lecture Topics	Reading Assignments	Deliverable/ Due Dates
January 12 Week 1 9 am - 4 pm on campus, 6 hrs.	Course Overview Student Introductions Distant-Learning Instructions & Training The Management of Disasters and Complex Emergencies Principles of Urban Resilience, Part 1	Slides provided in class Ref. 1 - Chapter 1 Ref. 2 – Chapter 1, pages 1-10 & Appendix A	Student Groups Identified
January 17 Week 2 6 - 7:30 pm distance, 1.5 hrs.	Hazards and Threats Principles of Urban Resilience, Part 2	Slides provided in class Ref. 1 - Chapter 2 Ref. 1 – Chapter 1, pages 11-43	
January 24 Week 3 6 - 7:30 pm distance, 1.5 hrs.	Assessing Risk and Vulnerability Tools for Building Urban Resilience, Part 1	Slides provided in class Ref. 1 - Chapter 3 Ref. 2 - Chapter 2, pages 47-56 & Appendix B	
January 31 Week 4 6 - 7:30 pm distance, 1.5 hrs.	Mitigation Tools for Building Urban Resilience, Part 2	Slides provided in class Ref. 1 - Chapter 4 Ref. 2 - Chapter 2, pages 57-134	

Date	Lecture Topics	Reading Assignments	Deliverable/ Due Dates
February 9 Week 5 9 am - 4 pm on campus, 6 hrs.	Preparedness and Response The Practice of Urban Resilience	Slides provided in class Ref. 1 - Chapters 5 & 6 Ref. 2 – Chapter 3 & Appendix C	Research Topic Selection Due
February 14 Week 6 6 - 7:30 pm distance, 1.5 hrs.	Recovery	Slides provided in class Ref. 1 – Chapter 7	
February 21 Week 7 6 - 7:30 pm distance, 1.5 hrs.	Disaster Management and the Public Sector	Slides provided in class Ref. 1 – Chapter 8	
February 28 Week 8 6 - 7:30 pm distance, 1.5 hrs.	Disaster Management and the Private Sector	Slides provided in class Ref. 1 – Chapter 9	
March 9 Week 9 9 am - 4 pm on campus, 6 hrs.	Multilateral Organizations and International Financial Institutions Special Considerations	Slides provided in class Ref. 1 – Chapters 10 & 11 Ref. 2 – Appendix D	Research Project Proposal Due Mid-Term Exam
March 10 – 17	Spring Recess		
March 21 Week 10 6 - 7:30 pm distance, 1.5 hrs.	Special Topic: Smarter Cities and IoT	Slides provided in class	
March 21 Week 11 6 - 7:30 pm distance, 1.5 hrs.	Special Topic: Disaster Management and Public Private Partnerships (P3)	Slides provided in class	

Date	Lecture Topics	Reading Assignments	Deliverable/ Due Dates
April 6 Week 12 9 am - 4 pm on campus, 6 hrs.	Research Project Presentations		Project Presentation Evaluations
April 11 Week 13 6 - 7:30 pm distance, 1.5 hrs.	Special Topic: Technology and Disaster Management, Part 1	Slides provided in class	
April 18 Week 14 6 - 7:30 pm distance, 1.5 hrs.	Special Topic: Technology and Disaster Management, Part 2	Slides provided in class	
April 25 Week 15 6 - 7:30 pm distance, 1.5 hrs.	Course Review & Wrap-Up	Slides provided in class	Final Research Project Reports Due
April 26	Classes End		
April 27-30	Study Days		
May 1-8	Final Exams		Final Exam as per USC schedule
May 10	Commencement		

X. ABOUT THE INSTRUCTOR

Lt. Gen. (Ret) Talley has over 37 years of global experiences in large-scale organizational leadership, global geopolitics, data/analytics and technology, and the environment. His diverse career spans the public, private, and academic sectors, coupled with periods of active and reserve military service as a Citizen-Soldier. His current work emphasizes the integration of engineering, business, and public policy for holistic applications through public, private, partnerships.

Lt. Gen. Talley joined USC in 2017. He holds a faculty appointment as a Professor of the Practice in the Price School of Public Policy & Viterbi School of Engineering and Scholar-in-Residence, Brittingham Social Enterprise Lab, Marshall School of Business, University of

Southern California (USC). Previous academic experience includes Advanced Leadership Fellow and Cabot-House Scholar-in-Residence, Harvard University; Adjunct Professor, Department of Geography and Environmental Engineering, The Johns Hopkins University; Professor (w/ tenure) and Department Chair, Lyle Professor of Leadership and Global Entrepreneurship, Director of the Hunt Institute for Engineering and Humanity, Southern Methodist University; Associate Professor (w/ tenure) and Assistant Professor, Department of Civil Engineering and Geological Sciences, University of Notre Dame.

Lt. Gen. Talley is also a senior executive for IBM where his focus is on global markets with activities ranging from advising on strategic goals and issues, mergers and acquisitions, and business development. Emphasis is on delivering solutions sets that utilize big data integration with cognitive analytics for applications in cyber security, disaster and emergency management, infrastructure resilience, business and government operations, and improved decision-making. He is a Global Fellow at the IBM Center for the Business of Government.

Lt. Gen. Talley retired from military service in 2016 with his final assignment as the 32nd Chief of Army Reserve and Commanding General, U.S. Army Reserve Command. As the senior leader for the U.S. Army Reserve, he was responsible for an organization whose size and scope, in business terms, rank it as a Fortune 50 company. His organization consisted of approximately 215,000 Soldiers and civilians, 134 general officers and senior executives with an annual operating budget of approximately \$9 billion dollars.

Lt. Gen. Talley received his Ph.D. in Engineering from Carnegie Mellon University and his Executive M.B.A. from the University of Oxford, England. He holds multiple master's degrees in engineering, strategic studies, liberal arts, and religious studies. He is a registered Professional Engineer (P.E.), a Board-Certified Environmental Engineer (BCEE), and a Diplomate, Water Resources Engineer (D.WRE).

XI. GENERAL INFORMATION

Statement on Academic Conduct and Support Systems

Academic Conduct:

Plagiarism – presenting someone else's ideas as your own, either verbatim or recast in your own words is a serious academic offense with significant consequences. Please familiar yourself with the discussion of plagiarism in *SCampus* in Part B, Section 11, "Behavior Violating University Standards" (<https://policy.usc.edu/scampus-part-b/>). Other forms of academic dishonesty are equally unacceptable. See additional information in *SCampus* and university policies on scientific misconduct (<http://policy.usc.edu/scientific-misconduct>).

Support Systems:

Student Counseling Services (SCS): (213) 740-7711 – 24/7 on call

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention (<https://engemannshc.usc.edu/counseling>).

National Suicide Prevention Lifeline: 1-800-273-8255

Provides free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week (<http://www.suicidepreventionlifeline.org>).

Relationship and Sexual Violence Prevention Services (RSVP): (213) 740-4900; 24/7 on call

Free and confidential therapy services, workshops, and training for situations related to gender-based harm (<https://engemannshc.usc.edu/rsvp/>).

Sexual Assault Resource Center

For more information about how to get help or help a survivor, rights, reporting options, and additional resources, visit the website (<http://sarc.usc.edu>).

Office of Equity and Diversity (OED)/Title IX Compliance: (213) 740-5086

Works with faculty, staff, visitors, applicants, and students around the issues of protected class (<https://equity.usc.edu>).

Bias Assessment Response and Support

Incidents of bias, hate crimes and microaggressions need to be reported allowing for appropriate investigation and response (<https://studentaffairs.usc.edu/bias-assessment-response-support/>).

The Office of Disability Services and Advocacy: (213) 821-4710

Provides certification of students with disabilities and helps arrange relevant accommodations (<http://dsp.usc.edu>).

Student Support and Advocacy: (213) 821-4710

Assists students and families in resolving complex issues adversely affecting their success as a student EX: personal, financial, and academic (<https://studentaffairs.usc.edu/ssa/>).

Diversity at USC

Information on events, programs and training, the Diversity Task Force (including representatives for each school), chronology, participation, and various resources for students (<https://diversity.usc.edu/>).

USC Emergency Information

Provides safety and other updates, including ways in which instructions will be continued if an officially declared emergency marks travel to campus infeasible (<http://emergency.usc.edu>).

USC Department of Public Safety: (213) 740 4321 (UPC) and 323-442-1000 (HSC) for 24-hour emergency assistance or to report a crime.
Provides overall safety to USC community (<http://dps.usc.edu>).