

SRA 480 Crisis Informatics

Syllabus Spring 2016

Class Meetings: Tuesdays and Thursdays, room 215 IST, 9:45-11:00am
Office Hours: 11:00-12:45pm Tuesdays and Thursdays, 321J IST building
Course Instructor: Dr. Andrea Tapia, atapia@ist.psu.edu

OVERVIEW

In this course we will be examining how information and communication technologies have played a role in saving lives—specifically in the areas of technologies used toward emergency response and disaster response. This course explores the inter-connectedness of information, people, and technologies in a crisis. In particular, it examines how information is managed, organized, coordinated, and disseminated during a crisis; it analyzes information needs and seeking behaviors during a crisis, and explores how information and communication technologies can support communities in a crisis. Students reflect on lessons learned from past crises, and develop strategies to manage future crises. This course will equip students with the knowledge and skills to enable them to be key players in crisis response. The course will be taught in a small seminar style. There will be several class field trips.

COURSE OBJECTIVES

1. Understand the importance of information in crisis response
2. Explore the inter-connectedness of information, people and technology in a crisis
3. Analyze complex information needs and information seeking in a crisis
4. Gain an understanding of the factors that impact the integration and coordination of information in a crisis
5. Explore the needs of different actors in a crisis

READINGS

TEXT: Digital Humanitarians: How Big Data Is Changing the Face of Humanitarian Response, author: Patrick Meier
Order on Amazon for \$29

http://www.amazon.com/Digital-Humanitarians-Changing-Humanitarian-Response/dp/1482248395/ref=sr_1_1?ie=UTF8&qid=1420558438&sr=8-1&keywords=digital+humanitarians+meier

All other readings will be either online, linked through Angel, or in .pdf form on Angel.

ACTIVITIES

FEMA ONLINE TRAINING COURSES (4 total)

In the first 3 weeks of class each student will take 5 online training courses offered by FEMA. At the end of the week the student will upload to Angel either the completion certificate or a screenshot of the completed course(s). Once the student has passed all 4, she or he will be certified to work in an Emergency Operations Center, should they wish to. They will also have the same knowledge that is offered to first responders and emergency managers throughout the country. These will also help prepare the student for the field trips we will take in the first half of the semester.

TRIP REPORTS (4 total)

Four times during the course of the semester each student will be asked to write a report either concerning a field trip (trip report) or an assigned reading. The reports are always due on Friday to Angel. The reports must be a minimum of 1000 words (more is OK). Each report should contain a very short basic summary, some connection with the assigned readings in class, some connection with current events, and finally your critical evaluation.

TECH REPORT(3)

Three times during the course of the semester students will write about a new technology aimed at disaster response. Each report should contain a very short basic summary, some connection with the assigned readings in class, some connection with current events, and finally your critical evaluation.

LEADERSHIP ROLES (4)

Three or four times during the semester each student will take on a leadership role during class. Each student will lead the discussion of a reading. The student should expect to lead a 30-minute discussion. The student will come to class prepared with a few slides, which include the following items, (1) Short summary of the readings, (2) Criticism of the readings, (3) Connection between the readings and current events and, (4) Questions for the other students in the class.

FINAL TEAM PAPER AND PRESENTATION

For the final project in this class student teams will design a new technology that would be useful in crisis response. Student teams will not be expected to build this technology, only create a well-research and justified design. The team will have FIVE TASKS. Each task will require the team to hand something in.

1. Conduct a full Requirements Analysis for the technology you want to design. This includes looking over the technologies that already exist and making a case for a missing one. This also includes interviewing several experts working in the field to determine their requirements for the new technology. READ: http://en.wikipedia.org/wiki/Requirements_analysis
2. Conduct a High Level Design for the technology you want to design. This should explain the design of the new technology in detail, justifying each part. This might even include prototype and mockup designs. READ: http://en.wikipedia.org/wiki/High-level_design
3. Write a Use Case for the technology you wish to design. Write a narrative about who/how/when the tech would be used. READ http://en.wikipedia.org/wiki/Use_case

4. Make a Presentation to the class about your technology and design.
5. Hand in a Final Paper in which all parts are seamlessly integrated.

This is a group project. Each team will be comprised of 3-4 students. The team will then be expected to choose a single common project. Each week, for 3 weeks, the student teams will hand in an interim document that manages one aspect of the overall project. These will eventually be combined to form the basis of the final document. Each team will make a presentation in class. Your presentation will last approximately 30 minutes and all team members must participate. You may use the full technological devices and services available to you in this presentation. Lastly, you will hand in your final, written document.

GRADING

4 FEMA courses completed @25 points each	100
4 trip reports @40 points each	160
3 tech reports@20 points each	60
4 leadership presentations @20 points each	80
2 Team interim reports @10points each	20
Final Team Paper	80
TOTAL possible points	500

I reserve the right to alter the grading scale during the semester with adequate warning and explanation to the students.

DAILY SCHEDULE

Date	Activities and Readings	Deliverables
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<p>Week 1</p> <p>T 1/12 Th 1/14</p>	<p>Tuesday: No class. Dr. Tapia on travel.</p> <p>Thursday: Course Overview (Dr. Tapia) 5 minute Video: Emergency Management: https://www.youtube.com/watch?v=3jXlhPGs0T8</p>	<p>Nothing Due</p>
<p>Week 2</p> <p>T 1/19 Th 1/21</p>	<p>Tuesday: No class meeting. Take 2 FEMA online training at your leisure. Proof due Friday.</p> <p>Thursday: Discussion in class- 2 articles. Lead by Harrison and Anthony. (pdf on Angel) Introduction to Emergency Management. (authors Haddow-Bullock and Coppola). Chapter 1 (also available as a google book) http://books.google.com/books/about/Introduction_to_Emergency_Management.html?id=wH8Q6UNx2vEC</p> <p>(pdf on Angel) Local Emergency Management Organizations (author David McEntire), http://books.google.com/books/about/Introduction_to_Emergency_Management.html?id=wH8Q6UNx2vEC</p>	<p>DUE FRIDAY: Proof of Completion of FEMA online trainings--angel</p> <p><u>IS-100.b - (ICS 100) Introduction to Incident Command System</u></p> <p><u>IS-200.b (ICS 200) ICS for Single Resources and Initial Action Incidents</u></p>
<p>Week 3</p> <p>T 1/26 Th 1/28</p>	<p>Tuesday: No class meeting. Take 2 FEMA online training at your leisure. Proof due Friday.</p> <p>Thursday: Guest Speaker. Dr. Nicklaus Giacobe. Introduction to Emergency Management. Before class READ Have them read http://www.firehouse.com/news/12127551/firefighter-news-three-austin-texas-firefighters-burned-in-apartment-collapse and listen to https://www.youtube.com/watch?v=YPlawVjTw prior to that class date.</p>	<p>DUE FRIDAY: Proof of Completion of FEMA online trainings</p> <p><u>IS-800.b National Response Framework, An Introduction</u></p> <p><u>IS-700.a National Incident Management System (NIMS), An Introduction</u></p>
<p>Week 4</p> <p>T 2/2 Th 2/4</p>	<p>Tuesday: No class meeting. (Training on Friday)</p> <p>Thursday: Discussion in class- 2 articles. Lead by Tyler and Zach.</p> <p>Crowe. Chapter 1 and 5 Introduction to the Application of Social Media in Modern Emergency Management The Yellow Tape Conundrum: Citizen and Responder Responsibility</p>	<p>FRIDAY--all day training. 9:00am-5:00pm Social Media in Disaster --Centre LifeLink</p>

	***FRIDAY Feb 5th--Special Training	
Week 5 T 2/9 Th 2/11	<p>Tuesday: Field Trip. New Class Location. 911 Center in Bellefonte.</p> <p>Thursday: Discussion in class- 2 articles. Lead by Elena and Hannah. Crowe, Chapter 6 and 7 Who's the Sheriff in These Parts: Monitoring and Analysis of Social Media Information White Hot or White Noise? Aggregation and Validation of Social Media Information</p>	DUE FRIDAY: 1000 plus word critical trip report on the 911-center
Week 6 T 2/16 Th 2/18	<p>Tuesday: Field Trip. New Class Location. EOC--PSU--Beaver Stadium</p> <p>Thursday: Discussion in class- 2 articles. Lead by Harrison and Tyler. Crowe, Chapter 8 and 10 When Status Quo Becomes Obsolete: Modern Integrated Emergency Warning The Elephant in the Emergency Operations Center: The Fundamental Flaw within Formal Response Systems</p>	<p>DUE FRIDAY: 1000 plus word critical trip report on the EOC visit</p> <p>***THON weekend. Possibilities to work in the EOC during THON.</p>
Week 7 T 2/23 Th 2/25	<p>Tuesday: Field Trip. New Class Location. Alpha Fire Station.</p> <p>Thursday: Discussion in class- 1 report. Lead by Elena and Anthony. Report: Project Responder 4: Toward the First Responder of the Future http://www.firstresponder.gov/TechnologyDocuments/Project%20Responder%204.pdf</p>	DUE FRIDAY: 1000 plus word critical trip report on Alpha Fire
Week 8 T 3/1 Th 3/3	<p>Tuesday: Field Trip. New Class Location. Mission Critical Partners. 9:30-11:00am</p> <p>Thursday: Discussion in class- 1 report. Lead by Hannah and Zach. REPORT: The Wilson Center Connecting Grassroots & Government for Disaster Response, http://www.scribd.com/doc/177818033/Connecting-Grassroots-Government-for-Disaster-Response</p>	DUE FRIDAY: 1000 plus word critical trip report on Mission Critical Partners
Week 9 T 3/8 Th 3/10	NO CLASS—Spring Break!	

<p>Week 10</p> <p>T 3/15</p> <p>Th 3/17</p>	<p>Tuesday: In class Technology Demo: Open Street Map. Dr Sterling Quinn. Geography.</p> <p>Thursday: Discussion in class. 2 chapters. Lead by Anthony and Zach. Digital Humanitarians Book. Meier, Chapter 1, The Rise of Digital Humanitarians Meier, Chapter 2, The Rise of Big Crisis Data</p>	
<p>Week 11</p> <p>T 3/22</p> <p>Th 3/24</p>	<p>Tuesday: Guest Lecture. In class Tech Demo. Drones/AUVs for Disaster Response. Dr. Carolynne Hultquist.</p> <p>Thursday: Discussion in class. 2 chapters. Lead by Elena and Hannah. Digital Humanitarians Book. Meier, Chapter 3, Crowd-Computing Social Media Meier, Chapter 4, Crowd-Computing Disaster Imagery</p>	
<p>Week 12</p> <p>3/29</p> <p>3/31</p>	<p>Tuesday: Guest Lecture. In class Tech Demo.</p> <p>Thursday: Discussion in class. 2 chapters. Lead by Harrison and Tyler. Digital Humanitarians Book. Thursday Meier, Chapter 5, Artificial Intelligence for Disaster Response Meier, Chapter 6, Artificial Intelligence in the Sky</p>	<p>***Possible Field Trip to FEMA and Red Cross in Washington DC.</p>
<p>Week 13</p> <p>T 4/5</p> <p>Th 4/7</p>	<p>Tuesday: Guest Lecture. In class Tech Demo.</p> <p>Thursday: Discussion in class. 3 chapters. Lead by ???. Digital Humanitarians Book. Meier, Chapter 7, Verifying Big Crisis Data Meier, Chapter 8, Verifying with Artificial Intelligence Meier, Chapter 10, Next Generation Digital Humanitarians</p>	<p>*** Possible Field Trip to NYC--United Nations OCHA</p>
<p>Week 14</p> <p>T 4/12</p>	<p>Team Simulation Project Week 1</p>	<p>DUE FRIDAY: Team Interim deliverable 1</p>

Th 4/14		BLUE and WHITE weekend
Week 15 T 4/19 Th 4/21	Team Simulation Project Week 2	DUE FRIDAY: Team Interim deliverable 2
Week 16 T 4/26 Th 4/28	Team Simulation Project Week 3 Final Presentations	DUE FRIDAY: Team Interim deliverable 3 Team presentations
Finals week	Final Papers Due TEAM peer evaluations	Final Paper Due