SI 537: Crisis Informatics
University of Michigan, School of Information
Tuesday, 6:00 – 9:00 pm, A859 CHEM
Fall 2019

PROFESSOR

Edward Happ, Executive Fellow, Office: 3446 North Quad
Email: ehapp@umich.edu
Skype: eghapp
LinkedIn: https://www.linkedin.com/in/edward-g-happ

OFFICE HOURS

Mondays & Fridays, 3:00 – 4:30pm, 3446 North Quad

OVERVIEW

Crisis Informatics --- Saving lives in crises means being prepared, coordinated and fast. Information and technology are increasingly the tools people in need are turning to. As humanitarian organizations have agreed, “information is aid.” Participants in this class will learn to examine crisis situations, in continuum from personal to international crises, and evaluate and plan relevant information technology responses. The class will review personal crises such as a major accident; and recent international crisis-disaster response, such as the Syrian Refugee migration, Hurricane Sandy, and Nepal earthquake. Students will have an opportunity to have hands-on experience with the technology tools used in disaster response, and work in teams with senior executives from international NGO's and corporations.

Credit Hours: 3

Advisory prerequisites: None. Overrides for undergraduates and those from other schools are on a case-by-case basis.

Course Goals and Learning Objectives:

The three objectives for this course are: (a) provide participants some background on information technology and crisis response, (b) to develop personal and community resiliency strategies and (c) to prepare for disaster response certification for future field work.

Upon completion of this class, students will be able to:

a) Identify and recommend technologies and data relevant to the affected population's context
b) Apply a framework for understanding the application of technologies to the scope, severity and phases of a crisis and response
c) Develop a crisis resiliency strategy for an organization, community, individual or project
d) Be prepared for deployment during a crisis response.
Rationale for the Course:

Managing and personal use of information in a crisis provides an important means for resiliency: how you bounce-back from shocks and return to healthy, productive being. IT leaders (and others) need to think about crises from an individual, organizational, community and international standpoint regardless of whether these crises are engendered by explicit natural or human-caused events. As a long-term practitioner, I can unequivocally say that organizations, especially but not only humanitarian ones, need people who are resilient in crises, can deal with ambiguous situations and can execute with agility when time is of the essence.

Audience for This Course:

Masters students seeking to develop resilient responses using information and technology in the context of a continuum of crises from the personal, to the organizational and international level. The course will be of particular interest to students interested in work with nonprofits, relief organizations, civic groups and government relief organizations, as well as those who have an interest in volunteering their time and expertise in assisting in disaster response.

Note: I intend to solicit student, faculty and practitioner’s input for this class throughout the semester.

Instructor qualifications

Leadership in the crisis management practice and application of technologies. For example, I have 40 years of IT experience, with 38 of those years in IT-related management positions and 17 years as CIO for international organizations involved in disaster relief operations.

Lab Support

The class will make use of phase one of the “Crisis Immersion Lab” for simulating communication contexts in many of the most vulnerable regions and countries. This lab uses rooms in which the telecommunications environment can be controlled and constrained for conditions during and following a disaster. Budget is to be determined and will be technology company or other grant-based funded.

Student cost for the lab preparation ("go-kit") will be up to $150, with full funding options available.

18. Specialization requirements: (check all that apply)

To be negotiated with the specialization areas.

<table>
<thead>
<tr>
<th>Specialization</th>
<th>Required</th>
<th>Counts toward Specialization</th>
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<tbody>
<tr>
<td>Archives &amp; Records Management</td>
<td></td>
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<td>Human Computer Interaction</td>
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Class Plan

The class will cover 5 themes across 13-14 classes

Course themes

1. Individual crises (episodic and recurring (e.g., stress))
2. Local/community crises
3. Organizational/system/project crises
4. Regional/national crises
5. International crises

Class Plan
Note: The detailed class plan is available on Google Drive and contains the class schedule, readings, grading and other important information. Any changes, such as guest speaker schedules or incorporating current events readings and discussions, will be reflected in the class plan.

A dozen things I want to get across:

1. In a disaster, you can't rely on the infrastructure
2. Murphy's Law prevails; planning for it is really hard, but necessary; it involves a-plans, b-plans and improvised decision-making
3. The shift to cash programs depends on the technology backbone
4. Time compresses in a crisis, and the needs change by the hour
5. Crisis leadership first means personal grounding
6. Crisis management is much different than response and development management
7. Your technology won't match citizen technology
8. Triage is necessary and most difficult
9. Decisions must be made with incomplete data
10. Backup of backup is necessary
11. In times of rapid change, agility is king
12. Personal preparedness requires physical practice (muscle memory)

Guest Lectures

The following professionals will be recruited to guest lecture in some of the classes planned:
1. Local emergency response planner
2. Hospital Emergency Room leader
3. Search and Rescue team leader
4. Crisis Leader author
5. Technology at the Margins, author
6. Conflict Zone international nonprofit leader

Mentors

Mentors will be assigned to teams from NetHope member CIOs and Disaster Management leads. Bi-weekly conference calls with the mentors will advise the teams on preparing their selected projects.

Projects/Team work

Project teams will all participate in mentor calls, complete a project plan and present the results of the project to the class. I recommend that at least one member of each team completes the online certificate class, and two members of each team completes a “go kit”. The whole team will present their project results plus a preparedness plan that will survive the crisis immersion simulation at the end of the course.

Required team project components:

1. Bi-weekly group-mentor calls. Each team will be paired with a NetHope member CIO or Disaster manager who will advise and challenge the team as it progresses to the final project.
2. Create a personal "go kit" (group project) in a knapsack. These are the essential items, including voice and data access, that you grab when you escape an immediate crisis, or hop on a plane to deploy to a crisis location. It will also be critical for navigating the final immersion lab. This is a design within constraints problem. Research and create a parts list and price it, then reduce the price and weight to stay within constraints.
3. Preparedness plan – a plan to test survival of the "immersion" crisis
4. Presentation of your team’s project plan to a “senior management team”

Elective project components:

1. Complete 4 or more Red Cross or FEMA disaster management classes. These are online classes that prepare you for deployment to an international or domestic crisis response unit.
2. Set up a satellite receiver and provide data access
3. Set up a WiFi repeater
4. Design improvements for the Network Relief Kit (NetHope)
5. Procure, setup and initialize Satphones or hand-held radios

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1 The immersion crisis is the simulation of loss of connectivity, including power, and how to recover and problem solve in such a crisis. The proposed “Crisis Lab” will provide an ideal forum for this simulation.
6. Interview local police, fire, security for their Disaster Recovery Plan (DRP) and write up key takeaways
7. Interview NetHope CIOs for their IT DRP and write-up key takeaways
8. Update the NetHope Case studies
9. Other electives are added as needed and are reflected in the class plan on the Grading tab

Grading:

I will use a gamified point-based grading system, based on the work Professor Barry Fishman and Erin Krupka have introduced, with no curving. It is your responsibility to accumulate points based on completing the assignments and extra credit, where needed. This means you can earn an A if you accumulate 3,950 points or more during the semester. This also means that failure is possible—a disaster we want to plan to avoid. It’s your choice.

The points-structure is divided into two sections: required and extra credit items. Items are scored from 0 to the maximum points based on the quality, completeness and viability of the assignments. See the class plan for the overview of the points structure (on the Grading tab).

Class Participation

Class participation and attendance are important. If a reading is listed for discussion, then you should be prepared to contribute to the class discussion of that reading. There are also opportunities to contribute to discussions outside of class by sharing information with your classmates via the discussion page on Canvas or connecting with the professor via email (ehapp@umich.edu) or Skype (eghapp). You are welcome to share interesting articles, videos or other information that relates to the course (see extra credits items in the class plan). A good grade will be difficult to achieve without regular class attendance because the lectures cover material that is not in the readings. It is expected that you will have read the weekly material. Please come to class prepared to contribute.

Individual Papers

You are required to submit two short papers and three brief reflection papers. For each paper you will respond to a prompt available on Canvas designated for that particular assignment. You should incorporate theories and concepts discussed in class and the readings, as well as any insights from your work experience.

Group Project

Since organizational work involves working and communicating with others, you will be asked to participate in a group project. Based on the class dynamics, you will be assigned to work in groups of three or four. The aim of the group project is three-fold:

1. The project allows you to directly experience the social processes we discuss in our course,
2. The project gives you an opportunity to use all of the elements of the course to build a compelling case for developing a new or revised program.
3. The project provides an opportunity to present to a senior management team to sell your proposal and gain approval and commitments to proceed (something you will do frequently in your career).
Effort Weighting

A note on group effort: While we hope that all group members would strive to equally contribute to the group project, we realize that this is not always the case. Therefore, the grade you receive on the group assignment will depend on your contribution to the project, which will be determined by your fellow team members. This policy exists to discourage slackers or free riders. Specifically, each group member will individually and anonymously evaluate his or her team members’ contributions to the project (see the team evaluation form). This is done by having each team member distribute points across group members such that there exists a mean value of 100. For example, if Alex gets 110, Bob gets 100, and Carl gets 90, then Alex will get 110% of whatever grade the project receives, Bridget gets 100% and Carl gets 90%. All point allocations must include a brief 1-2 sentence explanation of the grade assignment.

Labs: The Immersion Experience

We will simulate a crisis at the beginning and end of the class. Students that cannot handle a noisy, dark environment may opt out (but you will miss a key feature of the class). The simulations “bookend” the class, so chaos rules initially, but what is then applied from the classes creates some order from the chaos in the end. There will be a problem to solve for each immersion experience that will require the application of technology and data.

Data and Technology, The Crisis Framework

The course will progress in four dimensions: by scope (individual, organizational, community/regional to International), by severity (mild, moderate, severe, catastrophic), context (developed country, emerging country), and by time (emergency response in the first days/weeks, the transition period, and long-term development). This will be a useful framework to think about the strategic planning, use of technologies, and data needs in crises. What applies in individual and local crises carries forward to organization and international crises.

The Personal Preparedness Plan

One of the core assignments is to prepare a personal plan for ICT in disaster response. This can be an individual or paired project. It includes designing a personal “go kit” and providing the off-the-shelf parts list within the constraint of an average back-pack. Plans should have sufficient detail so that another individual or group could execute it. I recommend testing it with local community police, fire or safety/security officials. Finding them and interviewing them is one of the elective assignments.

Assignments and Lateness Policy

Assignments are described in documents maintained in a shared Google Drive folder linked to each assignment in Canvas. Each assignment is due by 5:30pm on the date of the corresponding class as noted in the Class Plan. Softcopy assignments should be submitted as files (e.g., not links to a Google Doc) in Canvas.

You will be able to track your assignment scores in Canvas. Please note that only total points are valid in Canvas. The percentage grades are not meaningful for a points-based course.
Late assignments will be penalized at the rate of 5% per day, including weekends. December 20 is the last date to submit assignments.

Note that some assignments have resubmission options, as noted in the Class Plan. Resubmissions may not earn full points depending on the assignment (i.e., some assignments, like the POAs and go-Kit design, may be refined as part of the assignment.)

**Academic Integrity**

Unless otherwise specified in an assignment all submitted work must be your own, original work. Any excerpts, statements, or phrases from the work of others must be clearly identified as a quotation, and a proper citation provided. Any violation of the School’s policy on Academic and Professional Integrity (stated in the Master’s and Doctoral Student Handbooks) will result in serious penalties, which might range from failing an assignment, to failing a course, to being expelled from the program. Violations of academic and professional integrity will be reported to UMSI Student Affairs. Consequences impacting assignment or course grades are determined by the faculty instructor; additional sanctions may be imposed by the assistant dean for academic and student affairs.

**Accommodations for Students with Disabilities**

If you think you need an accommodation for a disability, please let me know at your earliest convenience. Some aspects of this course, the assignments, the in-class activities, and the way the course is usually taught may be modified to facilitate your participation and progress. As soon as you make me aware of your needs, we can work with the Services for Students with Disabilities (SSD) office to help us determine appropriate academic accommodations. SSD (734-763-3000; http://ssd.umich.edu) typically recommends accommodations through a Verified Individualized Services and Accommodations (VISA) form. Any information you provide is private and confidential and will be treated as such.

**Student Mental Health and Wellbeing**

The University of Michigan is committed to advancing the mental health and wellbeing of its students, while acknowledging that a variety of issues, such as strained relationships, increased anxiety, alcohol/drug problems, and depression, directly impacts students’ academic performance. If you or someone you know is feeling overwhelmed, depressed, and/or in need of support, services are available. For help, contact Counseling and Psychological Services (CAPS) at (734) 764-8312 and https://caps.umich.edu/ during and after hours, on weekends and holidays or through its counselors physically located in schools on both North and Central Campus. You may also consult University Health Service (UHS) at (732) 764-8320 and https://www.uhs.umich.edu/mentalhealthsvcs, or for alcohol or drug concerns, see www.uhs.umich.edu/aodresources. For a more comprehensive listing of the broad range of mental health services available on campus, please visit: http://umich.edu/~mhealth/.

*Updated Aug. 28, 2019*