

SI 537: Crisis Informatics
University of Michigan, School of Information
Thursdays, 6:00 – 9:00 pm, LSA 1280
Fall 2021 Syllabus

PROFESSOR

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ZOOM LINK

To join the Zoom meeting:
<https://umich.zoom.us/j/5311470027?pwd=RXZSZVFoUG1nZTZZUksxSGdYQ1dsdz09>

OFFICE HOURS

Mondays 3:00 – 5:00pm, Wednesdays 10:30 am – 12:30 pm, by appointment slots via Zoom (below), or other mutually convenient times. To select a meeting slot:
<https://calendar.google.com/calendar/selfsched?sstoken=UUI4NS1lWXg3TDllfGRlZmF1bHR8MjhmOTg3YTNiZTc2Mzk2MDY2YzZmMjhhODMxYzJlZDg>

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 simulation tools used in disaster response, and work in teams with senior executives from international NGO's and corporations.

Credit Hours: 3

Advisory prerequisites: SI-501 or equivalent is recommended for the project team work. 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 background on information technology and crisis response, (b) to develop personal and community resiliency strategies and (c) to prepare for disaster response and certification for future field work.

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

- 1) Identify and recommend technologies and data relevant to the affected population's context
- 2) Apply a framework for understanding the application of technologies to the scope, severity, context and timing (phases) of a crisis and response
- 3) Develop a crisis resiliency strategy for an organization, community, individual or project
 - a) Apply the ABC-planning framework for disaster preparedness
- 4) Be prepared for deployment during a crisis response (at home or abroad).
 - a) Build and test disaster response kits (personal and team)
- 5) Work with technology-related leaders who will be mentors on project teams
 - a) Be able to present project proposals and plans to a senior management team
 - b) Be able to persuade a senior management team and gain their support

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 a 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: As an ongoing practice, 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 a virtual form of the “Crisis Immersion Lab” for simulating communication contexts and problem-solving in many of the most vulnerable regions and countries. This lab uses a board game within virtual meeting rooms in which the communications environment is controlled and constrained for conditions during and following a disaster.

Student cost for the lab preparation ("go-kit") will be covered by UMSI.

Class Plan

The class will cover 3 units across 13-14 classes:

1. Crisis & Sense-Making
2. Crisis & Planning
3. Crisis & Management

Note: All readings and assignments are provided via Canvas Modules. A [detailed class plan](#) is also available on Google Drive and is the “one-stop shop” for the course. It contains the class schedule plus links to readings, assignment rubrics, grading and other important information. Any changes, such as guest speaker schedules or incorporating current events readings and discussions, will be reflected in **Canvas Modules** and 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 ABC-planning: 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 humanitarian 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; crises are ambiguous!
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. An MSI graduate and wilderness instructor
2. Local emergency response planner
3. Hospital Emergency Room leader
4. Search and Rescue team leader

5. Crisis Leader author
6. Technology at the Margins, author
7. Conflict Zone international nonprofit leader
8. Corporate Social Responsibility leader
9. Senior Consultant from a leading international firm
10. Dean Emeritus of a leading design school

Guest speakers are subject to change and dates are tentative, depending on their schedules and availability.

Mentors

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

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. **Weekly or** 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" crisis¹
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)

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 “Crisis Lab” simulation exercise (SimEx) game will provide an ideal forum for this simulation.

5. Procure, setup and initialize Satphones or hand-held radios
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 Canvas Modules and 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.

Except for the team projects (**Midterm, SMT Presentation**) and the **Final Lab Reflection**, the assignments will be graded on a pass-redo basis. A passing grade on an assignment will earn full points. A redo grade will be based on resubmitting an assignment with all comments addressed.

The points structure is divided into three groups: required assignments, take-home exercises, and extra credit assignments. While extra-credit assignments are a way to supplement required assignments, they may not replace them. 100% of required assignments (group 1) are required; 50% of take-home exercises (group 2) are required; and none of the elective assignments (group 3) are required. Items are scored 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. Both are required for your final grade. 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 class Slack workspace or connecting with the professor via email (ehapp@umich.edu) or Zoom. You are welcome to share interesting articles, videos or other information that relates to the course (see extra credit assignments 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 **and participation presupposes being in class**. It is expected that you will have read the weekly material. Please come to class prepared to contribute.

A clarifying note about active versus passive participation: active participation means being engaged in the plenary discussions and guest speaker Q&A, both of which are confirmed by the Zoom recording; passive participation means being present, having your camera on (if in Zoom), Zoom or Slack chat, write-in Slack guest questions. The small group exercises and reading discussions in class are active participation, but not to the same degree where all benefit from your insights. Therefore, reading discussion participation earns half credit.

Individual Papers

You are required to submit one midterm paper-exercise and two brief reflection papers. For each paper you will respond to a prompt available in the rubric 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. Regardless of the type of organization, many projects in the workplace involve convincing a senior management team (SMT) to support a proposal. Based on the class dynamics, you will be self-assigned to work in diverse groups of four or five. 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 rate the level of contribution on a 1-5 scale, where 5 is the highest. All ratings 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, least developed 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 will be a 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 5:30 pm on the date of the corresponding class as noted in **Canvas, unless otherwise indicated**. Softcopy assignments should be submitted as files (Google files, Word, PowerPoint are the accepted formats) in Canvas. If you use a Google file (docs, sheet or Present) be sure to grant the instructors Comment access for docs, and Edit access for sheets (so we can add a comments column). Also ensure files are embedded in Canvas and not a link to an external file.

You will be able to track your assignment scores in Canvas. Please note that only total points are valid in Canvas for this course. 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 18 is the last date to submit any assignments, including those required, resubmitted or extra-credit.

Note that most 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 we teach may be modified to facilitate your participation and progress. As soon as you make me aware of your needs, we can work with the Office of Services for Students with Disabilities (SSD) to help us determine appropriate accommodations. SSD (734-763-3000; ssd.umich.edu/) typically recommends accommodations through a Verified Individualized Services and Accommodations (VISA) form. I will treat any information that you provide in as confidential a manner as possible.

Student Well-Being

Students may experience stressors that can impact both their academic experience and their personal well-being. These may include academic pressure and challenges associated with relationships, mental health, alcohol or other drugs, identities, finances, etc. If you are experiencing concerns, seeking help is a courageous thing to do for yourself and those who care about you. If the source of your stressors is academic, please contact me so that we can find solutions together. For personal concerns, U-M offers many resources, some of which are listed at [Resources for Student Well-being](#) on the Well-being for U-M Students website. You can also search for additional resources on that website. The School of Information also has an Embedded Psychologist, Ashley Ewearitt, Psy.D., who you can contact at ewearitt@umich.edu.

COVID-19 Statement

For the safety of all students, faculty, and staff on campus, it is important for each of us to be mindful of safety measures that have been put in place for our protection. By returning to campus, you have acknowledged your responsibility for protecting the collective health of our community. Your participation in this course on an in-person basis is conditional upon your adherence to all safety measures mandated by the State of Michigan and the University. Please refer to the [Maize & Blueprint](#) webpage for the latest information. Other applicable safety measures may be described in the [Wolverine Culture of Care](#) and the [University's Face Covering Policy for COVID-19](#). Your ability to participate in this course in-person as well as your grade may be impacted by failure to comply with campus safety measures. Individuals seeking to request an accommodation related to the face covering requirement under the Americans with Disabilities Act should contact the [Office for Institutional Equity](#). If you are unable or unwilling to adhere to these safety measures while in a face-to-face class setting, you will be required to participate on a remote basis (if available) or to disenroll from the class. I also encourage you to review the [Statement of Students Rights and Responsibilities](#), which includes a [COVID-related Statement Addendum](#).

Delivery of Instruction and Updates

Delivery of instruction is determined by the instructor, and is subject to change based on public health informed guidelines, and university policy. If there is a change to instruction mode or location of the course, communication will be sent to the class roster via email, and posted as an announcement to the class Canvas site. If there is a university or community level change, communication will be issued from the institution, with follow-up by instructor in each course.

*Updated Aug. 10, 2021
and Nov. 30, 2021*