SI / HMP 661: Managing Health Informatics
University of Michigan, School of Information
Winter 2019
Tuesdays, 2:30-5:30 PM
DENT G550

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OVERVIEW
The course will prepare students to take on management challenges faced in health informatics leadership roles within a variety of organizational settings. It will be a highly interactive course in which students will have the opportunity to apply theory when discussing real-world health informatics scenarios from a variety of perspectives.

OBJECTIVES
- To equip students with the relevant theories and health informatics content knowledge to become effective leaders within health-related organizations.
- To expose students to real-world managerial decisions in the health informatics domain.
- To enable students to consider multiple dimensions of decisions in uncertain and ambiguous scenarios and articulate the justification for their chosen approach.

LEARNING OUTCOMES
After completing this course students will be able to:
- Describe key theories in three domains — leadership, operational process control, and disruptive innovation — in order to have generalized knowledge about how to be an effective leader.
- Apply key theories to a set of health informatics topics in which management plays a central role -- implementation & project management, IT & care transformation, big data & analytics, policy & market forces -- in order to assess the specific mechanisms through which the theories can facilitate managerial decision-making.
- Be familiar with scenarios that capture real-world health informatics management decisions in order to feel comfortable making decisions under uncertain or ambiguous circumstances.

COURSE STRUCTURE
The course includes three modules:
- Module 1: Leading Health IT Implementations
- Module 2: Redesigning Care Delivery to Leverage Health IT
- Module 3: Innovating through Health IT
Each module will be comprised of: (1) introduction to theory and discussion of its applicability to managerial challenges in the health IT domain; (2) guest lecture with a practitioner – someone whose job it is to tackle that challenge – and they will speak to how well the theories work in practice; (3) an online simulation to apply theoretical concepts in an experiential learning context; (4) multiple case study analyses to give students an opportunity to tackle organizational challenge themselves, drawing on the theory and practical experiences.

COURSE MATERIALS
Course materials are available on Canvas under "Files" and through the Harvard Business School Publishing (HBSP) website. You will need to register on the HBSP website before purchasing the course packs (denoted with asterisk* on the syllabus). There are two separate links for the course packs:

- Case Studies ($40.87 total): https://hbsp.harvard.edu/import/600193
- Simulations ($55 total): https://hbsp.harvard.edu/import/600097

Additional readings are provided at no cost on Canvas. There are no books to purchase for this course.

COURSE REQUIREMENTS
Throughout the semester, students will be expected to complete the assigned readings, attend class and actively participate, and prepare three case analyses. There will be a final paper.

Required readings for the course include:
- Case studies
- Articles from peer-reviewed journals
- Reports and book chapters from health informatics thought leaders

The course will heavily emphasize cases. Although short, they require extensive preparation and thorough reading. We may not review all the readings in class, but you should use them to inform your case analyses and individual written assignments. At the end of the semester, I will translate the numerical scores to letter grades with a 97 and above being an A+, 93-96.9 being an A, 90-92.9 being an A-, 87-89.9 being a B+, 83-86.9 being a B, 80-82.9 being a B-, and so on.

INDIVIDUAL ASSIGNMENTS (55%)

Class Participation (20%)
Class participation is a critical part of the course and successful class participation requires that you have read the assigned material. The main homework assignment is to carefully complete the required readings and come to class prepared to engage in the class discussion. Periodically, I will randomly cold call students to respond to discussion questions and ask questions using an online poll during lecture. Students will also have opportunities to participate in Canvas discussions.

I will grade individual participation according to the posted rubric posted on Canvas. You will receive a midterm and final participation grade (each worth 10% of your total grade). You will also submit your own personal evaluation at the end of each module. If you do not submit your personal evaluation, then the grade will be counted as 0 points (see rubric on Canvas for details). The personal evaluation is due the Friday following the final class session for each module.

Simulation Reflection Papers (20%; each simulation worth 10% of total grade)
During the semester, you will actively engage in four simulations ("sims") that will allow you to experiment with ideas and outcomes. The simulations will require you to analyze available information and make decisions to solve an organizational challenge.
You will be required to write two (and only two!) reflection papers applying course concepts to your experience playing the simulation. You can choose any two simulations for your reflection paper as long as they are from two different modules (you cannot submit both of your reflection papers for the two simulations in Module 1). You cannot submit additional reflection papers for extra credit. You are still expected to complete all the simulations whether or not you will use them for your reflection paper; we will still discuss all the simulations during class, which is important for your participation grade. See the link under “Course Materials” for details purchasing the simulation coursepack on the HBSP website. The simulation reflection paper is due the Sunday following the day we run the simulation in class.

Final Paper (15%)
You have the option to choose a prompt for your final paper. Each of the three prompts reflects the concepts discussed in each of the three modules. You are required to select one prompt for your final paper. You may not submit multiple papers for extra credit. Details for each of the prompts will be provided on Canvas.

GROUP ASSIGNMENTS (45%)
Throughout the semester we will have an ongoing case competition for each of the case analyses presented in class. You will be assigned to a case team and stay with that team for the entire module. There will be new team assignments posted for each module. Each case team will then be randomly assigned to one of three tracks (A, B, or C) for each case. Each team will rotate to a new track throughout the module (see course schedule). Team and case assignments will be posted on Canvas. You will also evaluate each member of your team using the peer evaluation form available on Canvas.

Case Competition Updated for Module 2 & 3
**Track A:** In this track, there will be 3 teams assigned to Track A each week. The winning case team for the week will be decided by students assigned to Tracks B & C as the voting members for the week. Your team will need to prepare (1) online presentation before class, (2) answer questions in class on your case analysis, (3) submit a written case analysis.

(1) The presentation slides will be shared online for the entire class to view. Your team will upload your slides to the shared folder (link posted on Canvas homepage) by Sunday 5PM before the case is presented in class. Although not required, your team may want to use voice overs to narrate each slide. Your presentation should be no longer than 15 minutes viewing time.

(2) During class, your team will have a 10 minute Q&A session from your assigned Track B team.

(3) Your team will also submit a written case report (5-7 pages, single spaced) via Canvas. The 24 hour grace period also applies to the written case report if you team wants to make any changes following our in-class discussion or your Q&A session.

**Track B:** In this track, your team will need to prepare questions based on the case. Your team will be assigned a Track A team and lead the Q&A session for that team. The Q&A session will be 10 minutes. Your team should prepare your responses in advance based on your assigned Track A team's presentation slides. You will also be asked to rank the competing teams for the competition. You will need to submit your case questions (including any questions your team may have not been able to ask) via Canvas. This is due the same day as class.

**Track C:** In this track, you will not be assigned to a team for the week and will not need to prepare an assignment for submission. However, you are expected to view all of the Track A team presentation videos before class. You will also be asked to rank the competing teams for the competition. Although you will not be expected to formally present or respond to the case, you should still read the case and be prepared to participate in our class discussion.
Case Analyses: Track A (36%, each case analysis worth 12% of total grade)
You are required to prepare **three case analyses** throughout the semester in your assigned “Track A” case group. You will prepare a case analysis for each of three modules. The case analysis includes both a written case analysis and an oral presentation. Your grade for the case analysis is separate from the case competition judging panel's evaluation.

Case Analysis Response Group: Track B (9%, each case response worth 3% of total grade)
You are required to prepare **three Q&A case responses** throughout the semester in your assigned “Track B” case group. You will prepare a Q&A case response for each of three modules. The case response includes the list of questions your team will ask your assigned Track A team during the in-class Q&A session.

**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 their team members’ contributions to the project. A link to the peer evaluation form will be provided on Canvas.

You will evaluate each team member on a scale of 4 (being the highest; participated and submitted quality work to the team) to 1 (being the lowest; no contribution to the assignment). The scores for each team member will then be averaged, and your individual grade (% of total group grade) for a group assignment will be calculated as follows:
- 4 – 3.5 average = 100% of the total group grade
- 3.49 – 3 average = 95% of the total group grade
- 2.9 – 2.5 average = 85% of the total group grade
- below 2.5 average = 75% of the total group grade

For example, let’s say your team earns a 95/100 points on a group assignment and your average group evaluation score is a 3.5. Then your individual score will be 100% full credit for the assignment (95%). However, if your average group evaluation score is a 2.5, you would earn 80.75/100 points on the assignment (85% of the total group score).

You will also include a brief explanation of your rating for each team member, including yourself. The evaluation form will not be shared with your team members. In the Canvas comment section, I will report your average team effort rating. If necessary, I will report a summary of the team's feedback on your effort.

You will need to submit your peer evaluation form the day after the case analysis (by 11:59 PM). You have a one day grace period to submit your peer evaluation form. After the grace period, you will be penalized one rating level for each day you do not submit your evaluation.

**POLICIES AND EXPECTATIONS**

**Feedback**

**To You.** I will do my best to return assignments to you in a timely fashion and with sufficient comments for you to understand where any gaps in your understanding may lie. Feel free to follow-up with me if you can't understand (or read!) a particular comment, or if points were miscalculated. You may also visit me during office hours to discuss your grade or questions to prepare for an assignment.

**From You.** I highly value your feedback on both the content and structure of the course. There will be two opportunities for formal evaluation. I will conduct an anonymous mid-semester evaluation and there is a formal university-sponsored evaluation at the end of the semester. Outside of these, I welcome you to share feedback with me informally and via whichever channel is most comfortable to you. Don't be shy! My goal is to teach a course that meets your needs, and I am not always able to tell if I am doing so.
Written Work
Written work will be submitted to Canvas as a pdf. For all your written work, please take time to organize your thoughts, spell check, and proofread your work. Please use 1-inch margins (top, bottom, left, and right), Times New Roman font size 12. Paragraphs should be singled spaced with double space in between. Your UMID (NOT your name) and the title of the assignment should appear on every page in the upper left hand margin and page numbers should appear in the lower right hand corner.

Attendance
You are expected to arrive on time and attend all classes. We will end class on "reverse Michigan" time (that is, 5:20 PM). Your participation grade is heavily dependent on it. Missing multiple classes will not enable you to pass the class, and you should withdraw from the class if you anticipate multiple absences.

Understandably, you may have job interviews scheduled or encounter unexpected emergencies that prevent you from attending class. If longer term extenuating circumstances prevent you from meeting course requirements, please contact the UMSI Office of Student Affairs (OSA) so they can assist you. OSA will then let me know you will need special accommodations to complete the course. I am understanding of life hardships and will be flexible to find reasonable alternatives for your specific situation. Again, these special accommodations are reserved for extenuating circumstances only and does not apply to job interviews, a busy course load or demanding extracurricular schedule.

Late policy
Assignments will automatically be marked as late if they are uploaded on Canvas after the due date. You have a 1 day grace period to upload your assignment by the due date listed in the course schedule. After the grace period, assignments will receive a 10% penalty for each late day, up to two days maximum. I will not accept late assignments after 2 days and late assignments will receive a 0 grade. If there are unforeseen emergencies or extenuating circumstances preventing you from completing an assignment on time, please discuss these with me before the assignment is due.

Etiquette for using technology in the classroom
You are encouraged to bring laptops to class and to use them actively as learning tools keeping the following points in mind:

- Use laptops for taking notes, conducting research required for activities, and other specific classroom tasks as assigned by the instructor. During class, you should not check e-mail, chat, IM, play games, or perform other off-task activities. Make sure the volume on your laptop is muted.
- Engage in class activities. The computer should not become a barrier to one-on-one interaction, but instead should help facilitate the exchange of ideas and engagement in classroom contact.
- Demonstrate sensitivity to others. You should not display screen images, including wallpapers and screen savers, which might be distracting or offensive to other members of the class.
- Please silence or place your phone on vibrate. If your phone is out on your desk, please place it face down to avoid distractions.

What you can expect from me
- I will be available to you via e-mail and will promptly return your e-mail messages. Generally, I make an effort to respond within 48 hours; however I may be slower to respond depending on my volume of emails. Please keep in mind that I do not guarantee email replies over the weekend so plan ahead if you need to email a question pertaining to Tuesday's class so that I can respond in enough time.
- I will be available to you for office hours during the available appointment slots listed in the Google Calendar.
- I will maintain the Canvas web site with current materials and announcements, and will resolve any content-related problems promptly as they are reported to me.
• I will hold our written or verbal communications in confidence unless requested by you. I will not share or post your assignments without notifying everyone in advance of my plans to post them.
• I will treat all class members fairly, and will do my best to accommodate individual learning styles and special needs.

Academic Integrity
I strongly encourage collaboration while discussing and interpreting the reading assignments. Active learning is effective. Collaboration will be especially valuable in summarizing the reading materials and picking out the key concepts. All individual assignments must be your own, original work. Group assignments must also be the original work from the group members. Original work for narrative questions is not mere paraphrasing of someone else’s completed answer and you are not allowed to share written answers with each other prior to submission. Largely duplicate copies of the same assignment will receive an equal division of the total point score from the one piece of work. You may incorporate selected excerpts from publications by other authors, but they must be clearly marked as quotations and must be attributed. If you build on the ideas of prior authors, you must cite their work. You may obtain copy editing assistance, and you may discuss your ideas with others, but all substantive writing and ideas must be your own, or be explicitly attributed to another.

For more information, refer to the Rackham Graduate policy on Academic and Professional Integrity for the definition of plagiarism, and associated consequences: http://www.rackham.umich.edu/policies/academic_and_professional_integrity/statement_on_academic_integrity/.

Accommodations
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 taught may be modified to facilitate your participation and progress. As soon as you make us aware of your needs, we can work with Services for Students with Disabilities (SSD) to help determine appropriate accommodations. SSD (734-763-3000; http://ssd.umich.edu/) typically recommends accommodations through a Verified Individualized Services and Accommodations (VISA) form. We will treat any information you provide as private and confidential. Please let me know if you require any other special accommodations due to religious practices, physical requirements, medical needs, or any other reasons.

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/
**COURSE SCHEDULE**

Assignments due via Canvas 11:59 PM by the listed date in the schedule below.

*Schedule subject to change depending on guest speaker visits. A modified syllabus will be uploaded on Canvas accordingly.*

<table>
<thead>
<tr>
<th>Module</th>
<th>Session</th>
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| **MODULE 1**  
Health IT Implementation | **Week 1**  
Jan 15 | *Course Introduction*  
*Learning the Case Method*  
*The Role of Leaders & Leadership* |
| | **Week 2**  
Jan 22 | *The Role of Leaders & Leadership (cont.)*  
*Simulation: Everest v3* |
| | **Due Sun Jan 27:** Simulation Reflection Paper for Everest v3 sim  
**Due Tues Jan 29:** Case Analyses for Track A teams |
| | **Week 3**  
Jan 29 | *Case Competition 1:* Mount Auburn Hospital* |
| | **Feb Fri 1:** Case Response for Track B teams  
*Before* **Tues Feb 5 class:** Complete Judgment in a Crisis sim (individually)  
**Tues Feb 5 class:** Case Analyses for Track A teams |
| | **Week 4**  
Feb 5 | *Decision making, crisis management, & cognitive biases*  
*Case Competition 2:* Improving Access at the VA*  
*Simulation: Judgment in a Crisis* |
| | **Due Sun Feb 10:** Simulation Reflection Paper for Judgment in a Crisis sim  
**Due Tues Feb 12:** Case Analyses for Track A teams |
| | **Week 5**  
Feb 12 | *Case Competition 3:* Computerized Provider Order Entry at Emory Healthcare* |
| | **Due Fri Feb 15:** Personal Evaluation  
**Due Fri Feb 15:** Case Response for Track B teams |
| **MODULE 2**  
Redesigning Care Delivery to Leverage Health IT | **Week 6**  
Feb 19 | *Operational Process Control & Performance Improvement*  
*Simulation: Leveraging Networks* |
| | **Due Sun Feb 24:** Simulation Reflection Paper for Leveraging Networks sim  
**Due Sun Feb 24:** Case Presentation Slides for Track A teams  
**Due Tues Feb 26:** Case Analyses for Track A teams; Q&A response for Track B teams |
| | **Week 7**  
Feb 26 | *Using IT to Enable New Approaches to Care Delivery*  
*Case Competition 4:* PatientsLikeMe: Using Social Network Health Data to Improve Patient Care* |
| | **Week 8**  
Mar 5 | **No Class - Spring Break** |
| | **Due Sun Mar 10:** Case Presentation Slides for Track A teams  
**Due Tues Mar 12:** Case Analyses for Track A teams; Q&A response for Track B teams |
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<tr>
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<tr>
<td><strong>Week 9</strong></td>
<td>Mar 12</td>
<td><em>Data-driven Care Management &amp; Redesign</em></td>
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<td><strong>Case Competition 5:</strong> Weathering the Storm at NYU Langone Medical Center*</td>
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<td><strong>Due Sun Mar 17</strong></td>
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<td>Case Presentation Slides for Track A teams</td>
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<tr>
<td><strong>Due Tues Mar 19</strong></td>
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<td>Case Analyses for Track A teams; Q&amp;A response for Track B teams</td>
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<tr>
<td><strong>Week 10</strong></td>
<td>Mar 19</td>
<td><em>Data-driven Care Management &amp; Redesign (cont.)</em></td>
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<td><strong>Case Competition 6:</strong> Learning About Reducing Hospital Mortality at Kaiser*</td>
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<tr>
<td><strong>Due Fri Mar 22</strong></td>
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<td>Personal Evaluation</td>
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**MODULE 3**

Innovating through Health IT

| **Week 11**    | Mar 26 | *Creating and Managing Innovation*                                             |
|               |        | **Simulation:** Surgical Robots*                                              |
| **Due Sun Mar 31** |       | Simulation Reflection Paper for Surgical Robots sim                             |
| **Due Sun Mar 31** |       | Case Presentation Slides for Track A teams                                     |
| **Due Tues Apr 2** |      | Case Analyses for Track A teams; Q&A response for Track B teams                |
| **Week 12**    | Apr 2  | *Creating and Managing Innovation (cont.)*                                     |
|               |        | **Case Competition 7:** American Well: The Doctor Will E-See You Now*          |
| **Due Sun Apr 7** |       | Case Presentation Slides for Track A teams                                     |
| **Due Tues Apr 9** |      | Case Analyses for Track A teams; Q&A response for Track B teams                |
| **Week 13**    | Apr 9  | *Innovating within an Established Organization*                               |
|               |        | **Case Competition 8:** Stanford Medicine: Health IT Purchasing Decisions in a |
|               |        | Complex Medical Organization*                                                 |
| **Due Sun Apr 14** |       | Case Presentation Slides for Track A teams                                     |
| **Due Tues Apr 16** |      | Case Analyses for Track A teams; Q&A response for Track B teams                |
| **Week 14**    | Apr 16 | *Innovating in a Start-Up Environment*                                         |
|               |        | **Case Competition 9:** GOQii: Envisioning a New Fitness Future*               |
| **Due Fri Apr 19** |       | Personal Evaluation                                                             |

Review management challenge prompts before Apr 23 class session.

**CONCLUDING SESSION**

| **Week 15**    | Apr 23 | *Rapid Fire Management Challenges*                                             |
|               |        | **Reminder:** Class will be held in the Ehrlicher Room in North Quad.           |
| **Due Fri Apr 26** |       | Final Paper                                                                      |
MODULE 1: LEADING HEALTH IT IMPLEMENTATIONS

**Week 1: Course Introduction**

CIOs are visible leaders in healthcare organizations and make key health IT strategy decisions. We will learn about the management challenges faced in this role, specifically in the context of leading a large EHR implementation.

What is the value of using cases to learn? How do you prepare for a case?

**Week 2: The Role of Leaders and Leadership**

What are the key challenges faced by a leader in the context of HIT implementation?


**Building High-Performance, Resilient Teams**

What are common characteristics among successful teams? What is the leader’s role in developing and maintaining effective teams?


*Simulation:*

   Everest v3 (will run through simulation in-class)

**Week 3: Change Management**

How do you manage change on an organization level?


**Expectation Setting**

Why is it important to set expectations for employees? What are successful strategies for setting expectations? Why is setting expectations particularly important during periods of change?


**Framing for Learning**

What does it mean to be a learning organization? How can leaders create a learning orientation? What are the different dimensions of framing for learning? What do they look like in practice?


*Case Competition #1:*

**Week 4: Decision making, crisis management, & cognitive biases**

*Simulation:*
Judgment in a Crisis (complete simulation individually *before* class session)

*Case Competition #2:*

**Week 5: Leadership module wrap-up**


*Case Competition #3:*

**MODULE 2: REDESIGNING CARE DELIVERY TO LEVERAGE HEALTH IT**

**Week 6: Operational Process Control & Performance Improvement**

*How do we make sure sure, when we know what to do, we are doing the right thing? What are the steps to go from implementation to optimization? What happens when we fail at those steps?*


*Simulation:*
Leveraging Networks (will run through simulation in-class)

**Week 7: Using IT to Enable New Approaches to Care Delivery**

*What types of processes are health care organizations trying to change? How can HIT support these delivery system reforms? In what way are the HIT-enabled processes different from paper processes, beyond speed/automation? How can HIT support the overall attributes Shih et al identify as crucial to a high-performing health system?*


• Parikh, R.B., et al. (2016). Integrating Predictive Analytics into High-Value Care: The Dawn of Precision Delivery. JAMA.

*Case Competition #4:*

**Week 8: Spring Break**
No Class - enjoy break!

**Week 9: Data Driven Care Management & Redesign**
*How can better access to real-time data be used to redesign care and improve outcomes?*


*Case Competition #5:*

**Week 10: Redesigning Care Delivery Wrap-Up**


*Case Competition #6:*

**MODULE 3: INNOVATING THROUGH HEALTH IT**

**Week 11: Creating and Managing Innovation**
*What is innovation? How do we know it when we see it? Are there different types of innovation?*


*Simulation:*  
Surgical Robots (will run through simulation in-class)

**Week 12: Creating and Managing Innovation (cont.)**  
*What is the process of innovation? How do you create innovation? What is the bottom-up approach to innovation? How do you lead and manage innovation?*


*Case Competition #7:*


**Week 13: Innovating within an Established Organization**  
*What are the key management dimensions of innovation? What challenges do healthcare organization leaders face when managing innovations?*


*Case Competition #8:*


**Week 14: Innovating in Start-Up Environment**  
*What management skills are required to produce and deliver healthcare innovations in a start-up environment? How, if at all, might digital technologies today change or disrupt healthcare (e.g., blockchain, artificial intelligence, telehealth, IoT, etc.)?*


*Case Competition #9:*

**Week 15: Rapid Fire Management Challenges**
Discussion questions will be posted on Canvas in preparation for final class session.