

**Human Factors in Health Care Engineering Systems**  
**Industrial Engineering/Educational Psychology 546:**  
University of Illinois at Urbana-Champaign  
Department of Industrial and Enterprise Systems Engineering  
Fall 2025

**Course Description**

Complex health care systems often challenge providers, patients, and other health system participants, contributing to problems that threaten patient and provide safety, increase provider workload, reduce quality of care, and increase the cost of health care. This course overviews research that applies theories and methods from human factors and cognitive science to analyze the sources of these problems and to develop and evaluate design and training interventions to help providers and patients successfully navigate health care systems. An introduction to health care problems and accidents related to human factors is followed by an overview of concepts and methods from the fields of human factors and cognitive science. This background provides a foundation for considering specific topics related to human factors in health care. Topics range from provider and patient interaction with medical devices to collaboration and teamwork, concluding with broader socio-technical issues such as the impact of health information technology on clinical work.

**Credits:** 4

**Schedule:**

Lectures: Mondays and Wednesdays, 2:00-3:20 pm (central time),  
4101 Materials Science & Engineering Building

**Instructor:**

Dr. Abigail R. Wooldridge  
Office: 209A Transportation Building  
Lab: 2311/2313 DCL  
Email: [arwool@illinois.edu](mailto:arwool@illinois.edu)  
Phone: 217-300-8086  
Office Hours: Monday 12:30 – 1:30 pm, 2311 DCL  
Or by appointment

**Course content**

Provides an overview of research that applies theories and methods from human factors and ergonomics to analyze the sources of these problems and to develop and evaluate design and training interventions to help providers and patients successfully navigate health care systems. An introduction to problems and accidents in health care related to human factors is followed by an overview of concepts and methods from the fields of human factors and ergonomics.

**Readings:**

**This is a reading intensive, graduate level class.** Readings are available on the website of the course: <https://canvas.illinois.edu/>. Class time will be spent discussing the book chapters, papers, reports, etc. This discussion will allow you to apply the material covered in the readings. Each week, students will be in charge of leading the discussion (see assignment description, below).

**Course website:** <https://canvas.illinois.edu/>

Course materials such as syllabus, handouts, notes, assignment instructions, etc. can be found on the Canvas Learning Management System course website at <https://canvas.illinois.edu/>. You are responsible for regularly checking the course site as well as your email and canvas announcements to learn of any updates.

**Note: Class material is copyright to the University of Illinois Urbana-Champaign and should not be distributed or disseminated.**

**Grading Scale: Straight (i.e., no +/-)**

90% and up: A      80% - 89%: B      70% - 79%: C      60% - 69%: D      below 59%: F

**Grade Determination and Assignments**

Item	Points
Student Bio Survey	Completion out of maximum 5 points (0 or 5)
Office Hours Visit	Completion out of maximum 5 points (0 or 5)
Class Participation	Score out of maximum 14 points (1 per week of class meeting)
Weekly Reflection	Score out of maximum 14 points (1 per reflection)
Leading One Activity Class (Weeks 7-15)	Score out of maximum 30 points
System Analysis (Group) Project Team	Score out of maximum 2 points
System Analysis (Group) Project Topic	Score out of maximum 3 points
System Analysis (Group) Project In-Class Update for Feedback	Score out of maximum 3 points
System Analysis (Group) Project Outline	Score out of maximum 4 points
System Analysis (Group) Final Project	Score out of maximum 20 points
<i>Extra Credit (optional)</i>	<i>Extra credit points will be available over the course of the semester as described below; additional opportunities may be announced during class</i>
<b>Total</b>	Sum of the above, out of 100 points

**Class Participation (14 points):**

Participation is what you would expect: Attend class and contribute!

**Weekly Reflection (14 points):**

The reading journal encourages active reading of the required readings, integrating concepts from articles, lectures, and discussion with your prior knowledge and experiences, and reflection on class discussion. A good reflection is complete but concise and reflects an attempt to work through all of the course material. Your goal in these assignments is to ensure and demonstrate that you critically read, considered and digested the readings, participated in the class discussions and integrated the ideas from the course as well as your own together. You must reflect on what happens in class or you will not receive the point for that reflection – you cannot only summarize the readings.

For example, you might consider thinking about the reflection in 3 parts – I **strongly** suggest writing the first part **before** class meetings, right after you do the reading.

- Part 1: reflect on the readings and your process of reading. Try to answer the following questions:
  - What did you know about this topic before beginning these readings?
  - What did you take away from the readings?
  - What questions were you left with?
  - What surprised you, excited you and/or confused you?
- Part 2: reflect on the class discussion. Try to answer questions like:
  - What did you learn or consider that you had not expected based on the readings alone?
  - Did your questions get answered or did you pose them to the class (and what were their answers if so)?
  - How has your understanding changed or extended based on what we did as a group?
  - What did you think about the group activity? You might comment on:
    - What resonated with you and why?

- How did it help you to learn content from this course?
- Did the activity think about how you will approach learning and/or teaching in the future?
- Part 3: Reflect on the path forward. Try to answer questions like:
  - What remaining thoughts do you have after reading and participating in the class meetings?
  - Are there any questions or concerns that remain unresolved for you?
  - At the end of the week, what still surprises you, excites you and/or confuses you? (feel free to comment on changes)
  - How might you use what we learned this week in:
    - Your project for this class?
    - Your graduate studies?
    - Your career?

**FORMAT:**

- Canvas group discussion (fine to upload word document or enter text directly)
- Maximum of 2 pages
- Double spaced lines
- 11 point Arial
- 1 inch margins
- Run the spell checker and check the English.
- APA format for references (if you use them).

**Leading Activity Class (30 points):**

Three-four students lead discussion of one or more topics. The presentation involves briefly summarizing and leading class discussion about the readings (**no more than 30 minutes total**). A good presentation summarizes the paper(s) so everyone is on the same page for discussion, elaborates the paper in some way (e.g., presenting related or updated material from the web or from your own experience), and helps students integrate the presented paper with other course concepts. The remaining portion of the class should be an activity that you have designed in your group that encourages critical thinking and engagement of the course. Examples of possible activities include: debates, case study with solution design based on readings or patient safety events, developed questions for teams to answer and present on, TV game show activities (e.g., Family Feud, Jeopardy), etc. Please be creative and thoughtful! Grading of the class leading is based on adequacy of the article discussion, activity design, and encouraging class participation. Feel free to talk with me when preparing presentations!

See course schedule for deadlines and topics. A rubric will be provided about this project later in the semester.

**System Analysis (Group) Project (30 points):**

Students may work individually or in groups up to 3 for this assignment, which involves both a class presentation and paper/report. The assignment provides an opportunity to 'drill down' and work with course concepts of interest to better understand aspects of patient safety related to human factors covered in the course. You will identify an important problem related to patient safety (for example, a type of adverse event such as wrong-site surgery or giving the wrong medication to a patient; the impact of EHRs on clinical workload), analyze why it occurs, and develop an approach to address the problem. There are four parts to the project.

- Introduction and Background. This part has two sub-sections. First, describe in detail a specific case/example of the problem, based on the literature, media reports, or other sources. For example, in addition to describing the general problem that nurses can confuse patient medications, also describe and analyze an actual incident that you think is representative of the problem. This would include an analysis of factors contributing to the incident (a "root cause analysis"). Second, conduct a literature review to find out what is already known about this type of problem (more generally), focusing on human factors issues related to preventable errors and other factors that contribute to the problem and its consequences.
- Develop an approach to address the problem. How (and why) will this approach reduce the likelihood that the problem will occur, and/or mitigate the effects of this problem if it does occur?

- Describe how you would evaluate the effectiveness of your approach. The evaluation should involve one (or likely more) of the following methods: direct observation, analysis of incident/error reports or patient records; interviewing participants, usability testing, experiment (e.g., involving simulation of the target activities), or modeling of the processes involved. This section will also include expected results from the evaluation, and what new procedures, technology, or other products would result from your project.
- Conclusion. This part summarizes the main points in the paper. It should also include possible new procedures, technology, or other products that might result from your project.
- References – should be APA format.

Ideally, this project would involve going to an actual health care setting to study the problem and perhaps evaluate changes that address the problem, but this would be hard to do in one semester, so we'll stick with the hypothetical!

*Project Deliverables (see course schedule for dates):*

- Team with topic ideas (2 points)
- Topic proposal – following form on Canvas (3 points)
- In-class update for feedback – touch on progress on each of the sections of the final report, identifying uncertainty, challenges or questions you would like help with from your peers (3 points).
- Project outline – following sections above, with bullet outline for each (4 points)
- Class presentation (10 points) – Each student/group will present their project to the class (using power point or other presentation software), which summarizes their paper/report. Group members should work together on all parts of the project.
- Project Report/Paper (10 points) – The report takes the form of a written paper, which should be 10-15 pages, 12-pt font and double-spaced. The report should be organized according to the four sections described above. Include a title page (this doesn't count toward page limits). When using information from published sources in the presentation and report (this will often be course readings, but you can certainly use other sources as well), include citations and references, which also do not count toward page limits. Use APA format for citations and references, and list references at the end of the paper. *Finally, it always helps to include pictures and/or diagrams to illustrate the system and how you would redesign it!!*

More information and rubrics will be provided about this project later in the semester.

*Final Presentation + Report/Paper Grading*

I will grade by a rubric (which will be provided later in the semester). However, your score will also include input from your group members, as follows. When in groups, students will evaluate their peers using CATME. For example, consider a 4-person team that earned a score of 95% (19 of 20 points). The table below demonstrates how the scaling will work. (A 1 person team will just evaluate themselves)

Student	CATME Adj Factor (w/o self)	Final Project Score (Earned Score * CATME Scaling Factor)
1	1	$19 * 1 = 19$
2	1.4	$19 * 1.4 = 26.6$
3	1.2	$19 * 1.2 = 22.8$
4	0.4	$19 * 0.4 = 7.6$

**Extra Credit:**

You can earn 0.5 extra credit point (to be added on to your final grade, i.e., worth 0.5% extra) by coming to my office hours any week other than the first four weeks to *have a conversation* (can be about this course, it could be about the broader HFE field, career advice, life advice, etc.). This can be repeated each week, except for fall break and after the last day of class, for a total of 6 extra credit points over the course of the semester. Other opportunities for extra credit may be announced in class throughout the semester.

**Email policy**

Please check the syllabus and Canvas before asking questions. When sending an email, observe the following rules or professionalism:

- Title the email “**HF in HCES – (subject of your email)**” in the subject line. This prevents your email from going to the junk folder.
- Maintain [professional etiquette](#), including a respectful greeting, and clear, polite body of the email.
- Frame your question clearly and professionally. Include all relevant information about what you need up front.
- Email in advance. Allow 48 business hours for a response.

### Expectations for course meetings

- Participate in class discussions, contribute individual experiences when relevant to the topic so that others can benefit and learn
- Ask questions...there is no bad question if you learned something from the response
- Maturity and respect for others is mandatory (see statement on diversity).
- Cell Phones should be turned off at the beginning of class unless you are emergency personnel on-call. Activation or use of a cell phone will be penalized.
- Use other electronic devices (tablets, laptops, etc.) for course-related purposes only. Do not bring any electronic devices to exams.
- Take individual responsibility for completing assignments on time.
- Check e-mail and Canvas frequently (just not in class)
- All readings should be completed prior to class (except for first day, but those need to be done before the first lab).
- Class begins and ends on time. Arriving late or leaving early may result in missed points on the exercise.

### Generative AI Use Policy

The use of generative AI tools (e.g., ChatGPT, Grammarly, Claude, etc.) is permitted in this course under limited, clearly defined circumstances. You may **not upload or share any course materials**—including syllabi, readings, lecture content, assignment prompts, or assessments—with any generative AI software or platform. Doing so violates course and institutional policies regarding intellectual property and confidentiality.

You are ultimately responsible for understanding and mastering the course material independently. The use of AI should not substitute for your own engagement with the course content. Most assignments in this class require reflection, integration of course readings, class discussions, and personal insights—material and context that are not accessible or replicable by AI tools. As such, reliance on generative AI may offer minimal to no benefit for successfully completing your coursework.

### Permitted Uses of Generative AI in This Course

You may use generative AI tools for:

- Brainstorming and refining ideas;
- Drafting an outline to organize your thoughts;
- Checking grammar, spelling, and stylistic issues in writing.

### Prohibited Uses of Generative AI in This Course

You may **not** use generative AI tools for:

- Uploading or sharing any course materials, including prompts or assigned readings;

- Impersonating you in classroom contexts (e.g., composing responses for discussion boards or contributing to live chats);
- Completing work, individual or group, assigned to you unless the instructor and your group explicitly agrees to the use of AI tools;
- Writing any part of a draft of a writing assignment;
- Generating sentences, paragraphs, or entire papers to fulfill class requirements.

### Academic Integrity and Citation

When using generative AI, keep a journal documenting prompts, AI responses, and your usage, or, if possible, share a link to your chat history. Your instructor may ask you to provide this documentation.

All written assignments must be drafted by you. AI-generated content must not appear verbatim in your submissions. If you do use generative AI tools for permitted purposes (e.g., brainstorming or editing), you must disclose and cite this use clearly and accurately using **APA citation format**. Refer to the [APA style guide](#) for citing generative AI, including the text of your prompt to the AI.

Remember, a generative AI conversation in and of itself is not a valid source for facts. Always work to find, verify, and cite the original source of ideas, rather than citing the AI directly. Review the [University of Illinois System's Generative AI Guidance for Students](#).

You are solely responsible for the accuracy, legality, and ethical implications of any information you gather from generative AI tools. This includes ensuring that AI-generated content does not contain misinformation, plagiarism, or any material that violates copyright or university policies.

### Violations

Any use of generative AI beyond the scope outlined above will be considered a violation of this course's academic policies.

### **Absences and make up/ assignments**

Students are expected to attend every class. However, it is understood that there may be times when absences are unavoidable, such as illness. The [Student Code](#) outlines those circumstances in which a student may be eligible to obtain a letter from the Office of the Dean of Students for missed class. When eligible, students must submit an [absence letter request](#) within two weeks of returning to class following the absence.

For every absence, the student must 1) read all readings, 2) prepare a 3-page document addressing key points in the readings, points of discussion, and responses to these discussion points, 3) email this paper to me (on the Friday before the class to be missed for a planned absence or within a week after return to class for an unplanned absence), and 4) speak with another student about the in-class discussion.

### **Late assignments**

Assignments turned in after the deadline and up to 7 days late will have an automatic 10% penalty. Assignments turned in more than 7 days after the due date will have an automatic 20% penalty.

### **Academic Integrity**

The University of Illinois at Urbana-Champaign Student Code should also be considered as a part of this syllabus. Students should pay particular attention to Article 1, Part 4: Academic Integrity. Read the Code at the following URL: <http://studentcode.illinois.edu/>.

Academic dishonesty may result in a failing grade. Every student is expected to review and abide by the Academic Integrity Policy: <https://studentcode.illinois.edu/article1/part4/1-401/>. Ignorance is not an excuse for any academic dishonesty. It is your responsibility to read this policy to avoid any misunderstanding. Do not

hesitate to ask the instructor(s) if you are ever in doubt about what constitutes plagiarism, cheating, or any other breach of academic integrity.

I will enforce the university's standards of Academic Integrity. All alleged infractions will be documented in the campus-wide FAIR database and investigated, and all committed infractions will result in sanctions.

### **Accommodations for Individuals with Disabilities**

The University of Illinois is committed to ensuring that all students, including those with disabilities, do not experience barriers to learning and participating fully in class. If you have a letter of accommodation from DRES and have not already given it to me, please do so as soon as possible to ensure your accommodation needs are met.

To obtain disability-related academic adjustments and/or auxiliary aids, students with disabilities must contact Disability Resources and Educational Services (DRES) as soon as possible. To contact DRES, you may visit [1207 S. Oak St., Champaign](#), call [333-1970](#), email: [disability@illinois.edu](mailto:disability@illinois.edu), or go to the [DRES website](#).

### **Disruptive Behavior**

Behavior that persistently or grossly interferes with classroom activities is considered disruptive behavior and may be subject to disciplinary action. Such behavior inhibits other students' ability to learn and an instructor's ability to teach. A student responsible for disruptive behavior may be required to leave class pending discussion and resolution of the problem and may be reported to the Office for Student Conflict Resolution (<https://conflictresolution.illinois.edu>; [conflictresolution@illinois.edu](mailto:conflictresolution@illinois.edu); 333-3680) for disciplinary action.

### **Religious Observances**

It is the policy of the University of Illinois Urbana-Champaign to reasonably accommodate its students' religious beliefs, observances, and practices that conflict with a student's class attendance or participation in a scheduled examination or work requirement, consistent with state and federal law. Students should make requests for accommodation in advance of the conflict to allow time for both consideration of the request and alternate procedures to be prepared. Requests should be directed to the instructor. The Office of the Dean of Students provides an optional resource on its [website](#) to assist students in making such requests.

### **Sexual Misconduct Reporting Obligation**

The University of Illinois is committed to combating sex-based misconduct. Faculty and staff members are required to report any instances of sex-based misconduct to the University's Title IX Office. In turn, an individual with the Title IX Office will provide information about rights and options, including accommodations, support services, the campus disciplinary process, and law enforcement options.

A list of the designated University employees who, as counselors, confidential advisors, and medical professionals, do not have this reporting responsibility and can maintain confidentiality, can be found here: [wecare.illinois.edu/resources/students/#confidential](http://wecare.illinois.edu/resources/students/#confidential).

Other information about resources and reporting is available here: [wecare.illinois.edu](http://wecare.illinois.edu).

### **Additional University Resources**

If you are interested in obtaining information to improve writing, study skills, time management or organization, the following campus resources are available to all students:

- Library Savvy Researcher workshops and guides
  - <https://calendars.illinois.edu/list/4068>
  - [https://guides.library.illinois.edu/sb.php?subject\\_id=70338](https://guides.library.illinois.edu/sb.php?subject_id=70338)
- Graduate College Grant Writing Workshops and Resources
  - <https://grad.illinois.edu/fellowship/external-workshops>
  - <https://grad.illinois.edu/fellowship/external-resources>
- Writer's Workshop
  - Undergrad Library

- 217-333-8796
- <https://writersworkshop.illinois.edu>
- Offers consultations, workshops, resources, etc. Explore their website!
- <http://www.cws.illinois.edu/workshop>
- <https://www.disability.illinois.edu/strategies>
- <http://www.counselingcenter.illinois.edu/self-help-brochures/>

Also, most college offices and academic deans provide academic skills support and assistance for academically related and personal problems. Links to the appropriate college contact can be found by going to this website and selecting your college or school: <http://illinois.edu/colleges/colleges.html>

### **Mental Health**

Significant stress, mood changes, excessive worry, substance/alcohol misuse or interferences in eating or sleep can have an impact on academic performance, social development, and emotional wellbeing. The University of Illinois offers a variety of confidential services including individual and group counseling, crisis intervention, psychiatric services, and specialized screenings which are covered through the Student Health Fee. If you or someone you know experiences any of the above mental health concerns, it is strongly encouraged to contact or visit any of the University's resources provided below. Getting help is a smart and courageous thing to do for yourself and for those who care about you.

- Counseling Center (217) 333-3704
- McKinley Health Center (217) 333-2700
- National Suicide Prevention Lifeline (800) 273-8255
- Rosecrance Crisis Line (217) 359-4141 (available 24/7, 365 days a year)

If you are in immediate danger, call 911.

\*This statement is approved by the University of Illinois Counseling Center

### **Community of Care**

As members of the Illinois community, we each have a responsibility to express care and concern for one another. If you come across a classmate whose behavior concerns you, whether in regard to their well-being or yours, we encourage you to refer this behavior to the Connie Frank CARE Center (formerly the Student Assistance Center) in the Office of the Dean of Students. You may do so by calling 217-333-0050 or by submitting an [online referral](#). Based on your report, staff in the Student Assistance Center will reach out to offer support and assistance.

Further, as a Community of Care, we want to support you in your overall wellness. We know that students sometimes face challenges that can impact academic performance (examples include mental health concerns, food insecurity, homelessness, personal emergencies). Should you find that you are managing such a challenge and that it is interfering with your coursework, you are encouraged to contact the [Connie Frank CARE Center](#) (formerly the Student Assistance Center) in the Office of the Dean of Students for support and referrals to campus and/or community resources.

### **Family Educational Rights and Privacy Act (FERPA)**

Any student who has suppressed their directory information pursuant to *Family Educational Rights and Privacy Act* (FERPA) should self-identify to the instructor to ensure protection of the privacy of their attendance in this course. See <https://registrar.illinois.edu/academic-records/ferpa/> for more information on FERPA.

If you have made it this far paying attention, thank you. Email me a picture of your favorite living being (animal, insect, etc.) before the second class, using the correct subject line format with your name in the subject line to receive 1 extra credit point.

### **General Emergency Response Recommendations**

Emergency response recommendations can be found at the following website: <https://police.illinois.edu/em/run-hide-fight/>. I encourage you to review this website and the campus building floor plans website within the first 10 days of class. <http://police.illinois.edu/emergency-preparedness/building-emergency-action-plans/>. Check out campus safety video and be sure to join Illini Alerts. Here is a handout they requested we share with you.

## Run > Hide > Fight

Emergencies can happen anywhere and at any time. It is important that we take a minute to prepare for a situation in which our safety or even our lives could depend on our ability to react quickly. When we're faced with almost any kind of emergency – like severe weather or if someone is trying to hurt you – we have three options: Run, hide or fight.



### Run

**Leaving the area quickly is the best option if it is safe to do so.**

- ▶ Take time now to learn the different ways to leave your building.
- ▶ Leave personal items behind.
- ▶ Assist those who need help, but consider whether doing so puts yourself at risk.
- ▶ Alert authorities of the emergency when it is safe to do so.



### Hide

**When you can't or don't want to run, take shelter indoors.**

- ▶ Take time now to learn different ways to seek shelter in your building.
- ▶ If severe weather is imminent, go to the nearest indoor storm refuge area.
- ▶ If someone is trying to hurt you and you can't evacuate, get to a place where you can't be seen, lock or barricade your area if possible, silence your phone, don't make any noise and don't come out until you receive an Illini-Alert indicating it is safe to do so.



### Fight

**As a last resort, you may need to fight to increase your chances of survival.**

- ▶ Think about what kind of common items are in your area which you can use to defend yourself.
- ▶ Team up with others to fight if the situation allows.
- ▶ Mentally prepare yourself – you may be in a fight for your life.

Please be aware of people with disabilities who may need additional assistance in emergency situations.

## Other resources

- ▶ [police.illinois.edu/safe](https://police.illinois.edu/safe) for more information on how to prepare for emergencies, including how to run, hide or fight and building floor plans that can show you safe areas.
- ▶ [emergency.illinois.edu](https://emergency.illinois.edu) to sign up for Illini-Alert text messages.
- ▶ Follow the University of Illinois Police Department on Twitter and Facebook to get regular updates about campus safety.

## Schedule

Week	Date	Day	Topic	Reading	Discussion Leader(s)
1	8/25/25	Mon	Introduction to course, review syllabus. What is human factors/ergonomics?	None before class. After class, read: <a href="https://iea.cc/about/what-is-ergonomics/">https://iea.cc/about/what-is-ergonomics/</a>	Prof. Wooldridge
	8/27/25	Wed	Why does health care need human factors/ergonomics?	<i>Safer Healthcare</i> Ch. 1, 4	Prof. Wooldridge
	8/31/25	Sun	<b>Week 1 due date (no class meeting):</b> Student Bio due by 11:59 p.m. via Canvas Weekly reflection due by 11:59 p.m. via Canvas		
2	9/1/25	Mon	<b>Labor Day - no class</b>		
	9/3/25	Wed	Cognitive Ergonomics Overview + take home activity	<i>Handbook of Human Factors in Healthcare and Patient Safety</i> Ch. 18 Wickens and Carswell (2017)	Prof. Wooldridge
	9/7/25	Sun	<b>Week 2 due date (no class meeting):</b> Weekly reflection due by 11:59 p.m. via Canvas		
3	9/8/25	Mon	Physical Ergonomics Overview	<i>Handbook of Human Factors in Healthcare and Patient Safety</i> Ch. 15, 16	Prof. Wooldridge
	9/10/25	Wed	Physical Ergonomics Activity	Lavender et al. (2015) Joseph and Rashid (2007)	Prof. Wooldridge
	9/14/25	Sun	<b>Week 3 due date (no class meeting):</b> Weekly reflection due by 11:59 p.m. via Canvas		
4	9/15/25	Mon	Macroergonomics Overview	Carayon et al. (2013)	Prof. Wooldridge
	9/17/25	Wed	Macroergonomics Activity	Carayon et al. (2022) Holden et al. (2015)	Prof. Wooldridge
	9/21/25	Sun	<b>Week 4 due date (no class meeting):</b> Weekly reflection due by 11:59 p.m. via Canvas Deadline to complete required office hours visit		

NOTE: Schedule subject to change with fair notice, check “Announcements” on Canvas for updates.  
Last updated: August 20, 2025

Week	Date	Day	Topic	Reading	Discussion Leader(s)
5	9/22/25	Mon	What is safe high quality care?	<i>Safer Healthcare</i> Ch. 2, 3	Prof. Wooldridge
	9/24/25	Wed		Carayon et al. (2006) Carayon et al. (2020)  Recommended: Carayon et al. (2014) Holden et al. (2013) Holden and Carayon (2021)	
			Systems Engineering Initiative for Patient Safety		Prof. Wooldridge
	9/28/25	Sun	<b>Week 5 due date (no class meeting):</b> Weekly reflection due by 11:59 p.m. via Canvas In-class activity groups sign up due by 11:59 p.m. via Google Sheets (link on Canvas)		
6	9/29/25	Mon		<i>Handbook of Human Factors in Healthcare and Patient Safety</i> Ch. 41 <i>Safer Healthcare</i> Ch. 7	
			HF/E in the hospital - Emergency Department		Prof. Wooldridge
	10/1/25	Wed		Salwei et al. (2021) Catchpole et al. (2022)	1. 2. 3.
			HF/E in the hospital - Emergency Department Activity		
	10/5/25	Sun	<b>Week 6 due date (no class meeting):</b> Weekly reflection due by 11:59 p.m. via Canvas Project teams with tentative topic ideas due by 11:59 p.m. via Canvas		
7	10/6/25	Mon		<i>Handbook of Human Factors in Healthcare and Patient Safety</i> Ch. 45, 48	
			HF/E in the hospital - Operating Room		Prof. Wooldridge
	10/8/25	Wed		Berenholtz et al. (2009) Hallbeck et al. (2017)	1. 2. 3.
			HF/E in the hospital - Operating Room Activity		
	10/12/25	Sun	<b>Week 7 due date (no class meeting):</b> Weekly reflection due by 11:59 p.m. via Canvas		
8	10/13/25	Mon	No class - work day		None.

NOTE: Schedule subject to change with fair notice, check “Announcements” on Canvas for updates.

Last updated: August 20, 2025

Week	Date	Day	Topic	Reading	Discussion Leader(s)
	10/15/25	Wed	No class - work day		None.
	10/19/25	Sun	<b>Week 8 due date (no class meeting):</b> Project topic proposal due by 11:59 p.m. via Canvas		
9	10/20/25	Mon	HF/E in primary care	<i>Handbook of Human Factors in Healthcare and Patient Safety</i> Ch. 44 <i>Safer Healthcare</i> Ch. 9	Prof. Wooldridge
	10/22/25	Wed	HF/E in primary care activity	Temte et al. (2020) Holman et al. (2016)	1. 2. 3.
	10/26/25	Sun	<b>Week 9 due date (no class meeting):</b> Weekly reflection due by 11:59 p.m. via Canvas		
10	10/27/25	Mon	HF/E in health care across lifespan - older adults	<i>Handbook of Human Factors in Healthcare and Patient Safety</i> Ch. 44 <i>Safer Healthcare</i> Ch. 8	Prof. Wooldridge
	10/29/25	Wed	HF/E in health care across lifespan - older adults activity	Morrow et al. (2021) Arbaje et al. (2019)	1. 2. 3.
	11/2/25	Sun	<b>Week 10 due date (no class meeting):</b> Weekly reflection due by 11:59 p.m. via Canvas		
11	11/3/25	Mon	HF/E in health care across lifespan - pediatrics	<i>Handbook of Human Factors in Healthcare and Patient Safety</i> Ch. 42 <i>Scanlon et al. (2006)</i>	Prof. Wooldridge
	11/5/25	Wed	HF/E in health care across lifespan - pediatrics activity	Cox et al. (2017) Barton et al. (2021)	1. 2. 3.
	11/9/25	Sun	<b>Week 11 due date (no class meeting):</b> Weekly reflection due by 11:59 p.m. via Canvas		
12	11/10/25	Mon	In class peer feedback on project work	None.	None.

NOTE: Schedule subject to change with fair notice, check "Announcements" on Canvas for updates.

Last updated: August 20, 2025

Week	Date	Day	Topic	Reading	Discussion Leader(s)
	11/12/25	Wed	In class peer feedback on project work	None.	None.
	11/16/25	Sun	<b>Week 12 due date (no class meeting):</b> Weekly reflection due by 11:59 p.m. via Canvas Project paper outline due by 11:59 p.m. via Canvas		
13	11/17/25	Mon	HF/E in care transitions	<i>Handbook of Human Factors in Healthcare and Patient Safety</i> Ch. 11 <i>Werner et al. (2016)</i>	Prof. Wooldridge
	11/19/25	Wed	HF/E in care transitions activity	Wooldridge et al. (2022) Abraham et al. (2016)	1. 2. 3.
	11/23/25	Sun	<b>Week 13 due date (no class meeting):</b> Weekly reflection due by 11:59 p.m. via Canvas		
14	11/24/25	Mon	<b>Fall Break - no class</b>		
	11/26/25	Wed			
	11/30/25	Sun			
15	12/1/25	Mon	Current topic TBD		Prof. Wooldridge
	12/3/25	Wed	Current topic TBD activity		1. 2. 3.
	12/7/25	Sun	<b>Week 15 due date (no class meeting):</b> Weekly reflection due by 11:59 p.m. via Canvas Final project paper and presentation slides due by 11:59 p.m. via Canvas		
16	12/8/25	Mon	Project Presentations	None.	None.
	12/10/25	Wed	Project Presentations	None.	None.
	12/11/25	Thu	<b>Reading day - no classes! Good luck preparing for finals</b>		
	12/14/25	Sun	<b>Week 16 due date (no class meeting):</b> Weekly reflection due by 11:59 p.m. via Canvas		
17	TBD	TBD	No Exam. CATME Peer Evaluation due by end of exam period.		

NOTE: Schedule subject to change with fair notice, check “Announcements” on Canvas for updates.  
 Last updated: August 20, 2025

## References for Readings

- Abraham, J., Kannampallil, T., Brenner, C., Lopez, K. D., Almoosa, K. F., Patel, B., & Patel, V. L. (2016). Characterizing the structure and content of nurse handoffs: A Sequential Conversational Analysis approach. *Journal of Biomedical Informatics*, 59, 76-88.
- Arbaje, A. I., Hughes, A., Werner, N., Carl, K., Hohl, D., Jones, K., Bowles, K. H., Chan, K., Leff, B., & Gurses, A. P. (2019). Information management goals and process failures during home visits for middle-aged and older adults receiving skilled home healthcare services after hospital discharge: a multisite, qualitative study. *BMJ Qual Saf*, 28(2), 111-120. <https://doi.org/10.1136/bmjqs-2018-008163>
- Barton, H. J., Collier, R. J., Loganathar, S., Singhe, N., Ehlenbach, M. L., Katz, B., Warner, G., Kelly, M. M., & Werner, N. E. (2021). Medical Device Workarounds in Providing Care for Children With Medical Complexity in the Home. *Pediatrics*, 147(5). <https://doi.org/10.1542/peds.2020-019513>
- Berenholtz, S. M., Schumacher, K., Hayanga, A. J., Simon, M., Goeschel, C., Pronovost, P., Shanley, C. J., & Welsh, R. J. (2009). Implementing standardized operating room briefings and debriefings at a large regional medical center. *The Joint Commission Journal on Quality and Patient Safety*, 35(8), 391-397.
- Carayon, P., Hose, B.-Z., Wooldridge, A., Brazelton, T. B., Dean, S. M., Eithun, B. L., Kelly, M. M., Kohler, J. E., Ross, J., Rusy, D. A., & Hoonakker, P. L. T. (2022). Human-centered design of team health IT for pediatric trauma care transitions. *Int J Med Inform*, 162, 104727. <https://doi.org/10.1016/j.ijmedinf.2022.104727>
- Carayon, P., Hundt, A. H., Karsh, B. T., Gurses, A. P., Alvarado, C. J., Smith, M. J., & Brennan, P. F. (2006). Work system design for patient safety: the SEIPS model. *Qual Saf Health Care*, 15 Suppl 1, i50-58. <https://doi.org/10.1136/qshc.2005.015842>
- Carayon, P., Karsh, B.-T., Gurses, A. P., Holden, R., Hoonakker, P., Hundt, A. S., Montague, E., Rodriguez, A. J., & Wetterneck, T. B. (2013). Macroergonomics in health care quality and patient safety. *Reviews of Human Factors and Ergonomics*, 8(1), 4-54. <https://doi.org/10.1177/1557234X13492976>
- Carayon, P., Wetterneck, T., Rivera-Rodriguez, A., Hundt, A., Hoonakker, P., Holden, R., & Gurses, A. (2014). Human factors systems approach to healthcare quality and patient safety. *Appl Ergon*, 45, 14-25. <https://doi.org/10.1016/j.apergo.2013.04.023>
- Carayon, P., Wooldridge, A., Hoonakker, P., Hundt, A. S., & Kelly, M. M. (2020). SEIPS 3.0: Human-centered design of the patient journey for patient safety. *Appl Ergon*, 84, 103033.
- Catchpole, K., Privette, A., Roberts, L., Alfred, M., Carter, B., Woltz, E., Wilson, D., & Crookes, B. (2022). A smartphone application for teamwork and communication in trauma: Pilot evaluation “in the Wild”. *Hum Factors*, 64(1), 143-158.
- Cox, E. D., Jacobsohn, G. C., Rajamanickam, V. P., Carayon, P., Kelly, M. M., Wetterneck, T. B., Rathouz, P. J., & Brown, R. L. (2017). A Family-Centered Rounds Checklist, Family Engagement, and Patient Safety: A Randomized Trial. *Pediatrics*, 139(5). <https://doi.org/10.1542/peds.2016-1688>
- Hallbeck, M. S., Lowndes, B. R., Bingener, J., Abdelrahman, A. M., Yu, D., Bartley, A., & Park, A. E. (2017). The impact of intraoperative microbreaks with exercises on surgeons: A multi-center cohort study. *Appl Ergon*, 60, 334-341. <https://doi.org/10.1016/j.apergo.2016.12.006>
- Holden, R. J., Brown, R. L., Scanlon, M. C., Rivera, A. J., & Karsh, B.-T. (2015). Micro- and macroergonomic changes in mental workload and medication safety following the implementation of new health IT. *International Journal of Industrial Ergonomics*, 49, 131-143. <https://doi.org/10.1016/j.ergon.2014.04.003>
- Holden, R. J., & Carayon, P. (2021). SEIPS 101 and seven simple SEIPS tools. *BMJ Quality & Safety*, bmjqs-2020-012538. <https://doi.org/10.1136/bmjqs-2020-012538>
- Holden, R. J., Carayon, P., Gurses, A. P., Hoonakker, P., Hundt, A. S., Ozok, A. A., & Rivera-Rodriguez, A. J. (2013). SEIPS 2.0: a human factors framework for studying and improving the work of healthcare professionals and patients. *Ergonomics*, 56(11), 1669-1686. <https://doi.org/10.1080/00140139.2013.838643>
- Holman, G. T., Beasley, J. W., Karsh, B. T., Stone, J. A., Smith, P. D., & Wetterneck, T. B. (2016). The myth of standardized workflow in primary care. *Journal of the American Medical Informatics Association*, 23(1), 29-37. <https://doi.org/10.1093/jamia/ocv107>

Fall 2025 – IE/EPsy 546

- Joseph, A., & Rashid, M. (2007). The architecture of safety: hospital design. *Current Opinion in Critical Care*, 13(6), 714-719.
- Lavender, S. A., Sommerich, C. M., Patterson, E. S., Sanders, E. B.-N., Evans, K. D., Park, S., Umar, R. Z. R., & Li, J. (2015). Hospital patient room design: The issues facing 23 occupational groups who work in medical/surgical patient rooms. *HERD: Health Environments Research & Design Journal*, 8(4), 98-114.
- Morrow, D. G., Lane, H. C., & Rogers, W. A. (2021). A Framework for Design of Conversational Agents to Support Health Self-Care for Older Adults. *Hum Factors*, 63(3), 369-378.  
<https://doi.org/10.1177/0018720820964085>
- Salwei, M. E., Carayon, P., Hoonakker, P. L. T., Hundt, A. S., Wiegmann, D., Pulia, M., & Patterson, B. W. (2021). Workflow integration analysis of a human factors-based clinical decision support in the emergency department. *Appl Ergon*, 97, 103498.  
<https://doi.org/https://doi.org/10.1016/j.apergo.2021.103498>
- Scanlon, M. C., Karsh, B.-T., & Densmore, E. M. (2006). Human Factors Engineering and Patient Safety. *Pediatric Clinics of North America*, 53(6), 1105-1119.  
<https://doi.org/https://doi.org/10.1016/j.pcl.2006.09.012>
- Temte, J. L., Beasley, J. W., Holden, R. J., Karsh, B.-T., Potter, B., Smith, P., & O'Halloran, P. (2020). Relationship between number of health problems addressed during a primary care patient visit and clinician workload. *Appl Ergon*, 84, 103035. <https://doi.org/https://doi.org/10.1016/j.apergo.2019.103035>
- Werner, N. E., Gurses, A. P., Leff, B., & Arbaje, A. I. (2016). Improving Care Transitions Across Healthcare Settings Through a Human Factors Approach. *J Healthc Qual*, 38(6), 328-343.  
<https://doi.org/10.1097/jhq.0000000000000025>
- Wickens, C. D., & Carswell, C. M. (2017). Information processing. *Handbook of human factors and ergonomics*, 117-161.
- Wooldridge, A. R., Carayon, P., Hoonakker, P., Hose, B.-Z., Schroeder, K., Brazelton, T., Eithun, B., Rusy, D., Ross, J., Kohler, J., Kelly, M. M., Dean, S., Springman, S., Rahal, R., & Gurses, A. P. (2022). Care transition of trauma patients: Processes with articulation work before and after handoff. *Appl Ergon*, 98, 103606. <https://doi.org/https://doi.org/10.1016/j.apergo.2021.103606>