

**University of Waterloo**  
**Stratford School of Interaction Design and Business**  
**DEI 613**  
**Digital Media Design Solutions 1:**  
**Design Principles and Practice**

*We acknowledge that the Stratford School is on the traditional territory of the Anishinaabe, Haudenosaunee, and Ojibway/Chippewa peoples. This territory is covered by the Upper Canada Treaties. Our actions toward reconciliation take place through our research, teaching, learning, and community events, with guidance from the University's [Indigenous Initiatives](#) office.*

### **Instructor Information**

Instructor: Dr. Daniel Harley  
Email: dharley@uwaterloo.ca

### **Calendar Description**

In this course, students will explore the principles of digital design in terms of their visual design components and the functions they perform in various forms of digital content production. Students will receive hands-on training by engaging in a complete production cycle from conceptualization through to production and post-production. To situate their own practice within the wider social, cultural and economic contexts of digital design, students will also learn an explicit theoretical vocabulary for exploring, explaining, critiquing, and evaluating their design practices.

### **Course Goals and Learning Outcomes**

This course is designed as a hybrid remote seminar/studio that uses design as a methodology for creative, human-centered problem solving. The course is organized to support the following objectives:

- Developing a critical understanding of the issues and opportunities related to design and innovation by situating design practices within social, cultural, technological, and economic contexts;
- The production of *innovative solutions* to design challenges using a variety of physical and digital prototyping strategies;
- The use of *creative problem solving* to overcome formal, technical and logistical challenges at various states of the design process;
- The development of *human-centered solutions* that address the needs, desires and abilities of different audiences;
- The use of *exploratory research* and *playful discovery* as a tool for learning, exploration, and problem solving.

In this course, students will:

- Engage in design as a mode of creative practice and problem solving;
- Use a variety of design methods to generate insights, and communicate those insights through clear, compelling approaches to design and prototyping;
- Develop an understanding of some of the current debates within the field of design;

- Develop or improve technical proficiency in visual communication and content creation using standard and emerging software;
- Create digital and/or physical outputs to clearly and vividly communicate concepts, problems, and solutions, while integrating best practices from human-centred design, interface design, user-experience design, and information design.

### Readings (Online and/or available on LEARN)

1. Anderson, R. (2016). Afrofuturism 2.0 & the Black speculative arts movement: Notes on a manifesto. *Obsidian*, 42(1/2), 228-236.
2. Bennett, C. L., & Rosner, D. K. (2019). The promise of empathy: Design, disability, and knowing the “other.” In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems* (pp. 1-13).
3. Chancey, F. & Choi, T. (2020, April 20). Community and accessibility online [Audio podcast episode]. In *Data & Society*. <https://datasociety.net/library/community-and-accessibility-online/>
4. Cherry, M. (2015, March 23). Where are the Black designers? [Video]. YouTube. <https://youtu.be/eBuFCkmyYuA>
5. Cooper, A., Reimann, R., Cronin, D., & Noessel, C. (2014). Designing for mobile and other devices. In *About face: The essentials of interaction design*, (4th ed., pp. 507-568). John Wiley & Sons.
6. Costanza-Chock, S. (2020). Design practices: “Nothing about us without us.” In *Design justice: Community-led practices to build the worlds we need*. MIT Press. <https://design-justice.pubpub.org/pub/cfohnud7/release/1>
7. Crockford, K. (2020, June 16). How is face recognition surveillance technology racist. ACLU. <https://www.aclu.org/news/privacy-technology/how-is-face-recognition-surveillance-technology-racist/>
8. D’Ignazio, C. & Klein, L. F. (2020). What gets counted counts. In *Data Feminism*. MIT Press. <https://data-feminism.mitpress.mit.edu/pub/h1w0nbqp/release/2>
9. Dunne, A. & Raby, F. (2013). A methodological playground: Fictional worlds and thought experiments. In *Speculative Everything* (pp. 69-88). MIT Press.
10. e Silva, A. D. S., & Frith, J. (2012). Interfaces to public spaces. In *Mobile interfaces in public spaces: Locational privacy, control, and urban sociability* (pp. 25-47). Routledge.
11. Flanagan, M. (2007). Locating play and politics: Real world games & activism. *Leonardo Electronic Almanac*, 16(2-3), 1-13.
12. Hamraie, A. (2013). Designing collective access: A feminist disability theory of universal design. *Disability Studies Quarterly*, 33(4). <https://dsq-sds.org/article/view/3871/3411>
13. Hepworth, K. (2020). Ethical visualization: A method for ethically visualizing data. <https://kathep.github.io/ethics/>
14. Kurtuldu, M. (2017, July 31). How Google designers adapt material. Medium. <https://medium.com/google-design/how-google-designers-adapt-material-e2818ad09d7d>
15. Mathias, D. & Jesser, M. (2020, April 6). Brent Dykes - Data storytelling is more than data visualization (39) [Audio podcast episode]. In *Data Able*. Beyond the Data, LLC. <https://www.gobeyondthedata.com/thoughts/podcast-ep39-brent-dykes>
16. Monmonier, M. (2018). How to lie with maps (3rd ed., pp. 19-26, 60-71, plates 1-11). The University of Chicago Press.
17. NNgroup. (2020, July 10). Changing role of the designer part 2: Community based design [Video]. YouTube. <https://www.youtube.com/watch?v=MErVreaVK4Y>

18. Norman, D. (2005) Three levels of design: Visceral, behavioral, and reflective. In Emotional design: Why we love (or hate) everyday things. (pp. 63-98). Basic Books.
19. Schultz, T., Abdulla, D., Ansari, A., Canli, E., Keshavarz, M., Kiem, M., Martins, L. P. D. O. & JS Vieira de Oliveira, P. (2018). What is at stake with decolonizing design? A roundtable. *Design and Culture*, 10(1), 81-101.
20. Sharp, H., Preece, J. & Rogers, J. What is interaction design? In *Interaction Design: Beyond Human-Computer Interaction* (5th ed., pp. 1-36). Wiley.
21. Tharp, T. & Reiter, M. (2006). The creative habit: Learn it and use it for life (pp. 94-108). Simon & Schuster.
22. Tufte, E. R. (2001). Graphical excellence. In *The visual display of quantitative information* (2nd ed., pp. 13-51) Graphics Press.
23. Wakkary, R., Odom, W., Hauser, S., Hertz, G., & Lin, H. (2015). Material speculation: Actual artifacts for critical inquiry. In *Proceedings of The Fifth Decennial Aarhus Conference on Critical Alternatives* (pp. 97-108).
24. Wit. (2019, March 22). Alberto Cairo - How charts lie: Getting smarter about visual information [Video]. YouTube. <https://www.youtube.com/watch?v=Low28hx4wyk>
25. Wu, L. (2020, July 30). A.D.A. Now! [Audio podcast episode]. In *Throughline*. NPR. <https://www.npr.org/2020/07/27/895896462/a-d-a-now>

## Course Requirements and Assessment

Assessment	Weighting
A1: Information Design (Individual)	15%
A2: Future Design Solution (Individual)	20%
A3: Design Solution (Group)	25%
Studio Activities (Individual)	30%
Participation	10%

## Assignment Descriptions

Short descriptions are provided below - please see LEARN for full descriptions and assessment criteria.

### A1 Information Design

For your first studio assignment, you are tasked with creating a detailed, accurate, robust and original *information design (infographic)* to clearly and vividly represent, contextualize, and communicate the information contained in a publicly available open dataset in the city where you live.

### A2 Experience Prototype

In this assignment, you will use speculative design and Canada's future challenge areas to imagine a future challenge and create *either* a physical prototype of a wearable object *or* a digital prototype of a mobile interface in response to your imagined scenario.

### **A3 Future Design Solution (Group)**

For this final assignment, you will work in teams to create a high-fidelity design solution that addresses a real-world social, economic, or governance challenge emerging from the global pandemic. Working alongside group members from your future challenge area and using design thinking as your methodology, you will draw from the knowledge gained from A1 and A2 to contribute to a collaboratively developed solution to address the needs, desires and motivations of your chosen persona.

### **A3 Peer Evaluation**

Following the completion of A3, group members will complete a Peer Evaluation for each group member, including themselves. Scores will then be averaged. *If you do not complete a Peer Evaluation, you will receive a personal score of 0, which will be averaged with the scores of your group to determine your score. Your group members will receive a score that is the average of the actual scores received.*

### **Studio Activities (Discussion Board Posts)**

*Studio Activities* are conceptual and/or practical activities designed to deepen your understanding of the course material by thinking, ideating and creating. Each short exploration must be posted on the relevant Discussion Board and you are required and encouraged to provide collegial, constructive feedback to your peers. Studio activities are worth 30% of your final grade.

### **Participation, Preparation and Engagement**

In this course, participation is an active process that combines preparation for class, engagement in classroom activities, intellectual and creative contributions to discussions, workshops and in-class studios, and the development of productive, collegial relationships with others. Preparation for class includes completing readings and interim assignment deliverables. Engagement online includes contributing to the class environment by asking questions and sharing insights in discussion boards, and actively participating in in-class activities, 'design sprints', exploratory exercises and peer review.

### **Course Outline**

While we will make every effort to follow the schedule as outlined here, it is subject to change. Schedule changes will be communicated via email/Teams and posted to LEARN.

### **Course Schedule**

<b>Weeks</b>	<b>Content</b>	<b>Activities and Assignments</b>	<b>Important Dates (EST)</b>	<b>Weight (%)</b>
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Week 1: September 8-13	Introduction to the Course Week 1: Beautiful Data	Studio Activity 1: Mental Maps (the streets where we live)	Due: Sunday, September 13, 2020 at 11:55 PM	5%
Week 2: September 14-20	Week 2: Information Design	Studio Activity 2: One Dataset, 25 Ways	Due: Sunday, September 20, 2020 at 11:55 PM	5%
Week 3: September 21-27	Week 3: Design Studio	Make sure you are enrolled in an A1 Critique Group and an A2 Critique Group	By Monday, September 21, 2020 at 11:55 PM	
		Group Critique for A1	Due: Sunday, September 27, 2020 at 11:55 PM	3%
Week 4: September 28 - October 4	Week 4: Designing for People	Studio Activity 3: White Glove Prosthetic	Due: Sunday, October 4, 2020 at 11:55 PM	5%
		Submit A1: Information Design	Due: Sunday, October 4, 2020 at 11:55 PM	15%
		Confirm that you have received your randomly-drawn scenario for Studio Activity 4	By Monday, September 28, 2020 at 11:55 PM	
Week 5: October 5-9	Week 5: Speculative Design	Studio Activity 4: Future Casting	Due: Friday, October 9, 2020 at 11:55 PM	5%
READING WEEK				
Week 6: October 19-25	Week 6: Interface Design 1	Studio Activity 5: Cooking with Type	Due: Sunday, October 25, 2020 at 11:55 PM	5%
Week 7: October 26 - November 1	Week 7: Interface Design 2	Submit low fidelity prototype for A2: Future Prototype	Due: Sunday, November 1, 2020 at 11:55 PM	
Week 8: November 2-8	Week 8: Design Studio	Group Critique for A2	Due: Sunday, November 8, 2020 at 11:55 PM	3%
		Groups for A3: Design Solution will be created by the Instructor	By: Sunday, November 8, 2020 at 11:55 PM	
Week 9: November 9-15	Week 9: Designing with People	Submit A2: Future Prototype	Due: Sunday, November 15, 2020 at 11:55 PM	20%
Week 10: November 16-22	Week 10: Design Studio	A3 Feedback Sessions		

Week 11: November 23-29	Week 11: Design Studio	A3 Feedback Sessions		
Week 12: November 30 - December 6	Week 12: Final Presentations	Submit A3: Design Solution	Due: Sunday, December 6, 2020 at 11:55 PM	Part of 25% of your final grade
Week 13: December 7-13	Instructor Evaluation	Complete the 360 Evaluation Survey for each A3: Design Solution group member and yourself	Due: Sunday, December 13, 2020 at 11:55 PM	Part of 25% of your final grade

### Deadlines

Deadlines for all assignments are indicated in the course schedule. Extensions may be granted only in circumstances such as illness or emergency. Any request for accommodation must be accompanied by appropriate documentation.

### Late Work

Late assignments are subject to 5% (per day) penalty, including weekends. Penalties for late assignments will be deducted from the final grade received on the assignment. Late Studio Activities (Discussion Board Posts) will receive a maximum grade of 2.5/5. *Each board closes 2 weeks after the activity is due.* It is not possible to post to a closed discussion board.

### Working in Teams

Individual and group assignments are indicated in the syllabus. Individual assignments are to be completed by each student alone and in collaboration with other students as indicated (i.e. user testing, in-class brainstorming sessions, etc.). Collaboration on the production of individual deliverables (i.e. working on designs, sharing code, providing writing services, sharing datasets, etc.) constitutes *unauthorized collaboration* as outlined in Policy 71.

The final group assignment (A3) is to be completed collaboratively, including effectively managing goals, tasks and workflow, completing deliverables on time and on schedule, managing change and learning from mistakes, and collegially resolving conflicts. Each team member is expected to make tangible contributions to the project, drawing from their expertise, and/or developing new skills and expertise. These contributions will be assessed in a Peer Evaluation once the assignment is complete.

### Course Modification Warning

The instructor reserves the right to modify elements of the course during the term. If a modification becomes necessary, reasonable notice and communication with the students will be given with explanation. It is the responsibility of the student to check their University of Waterloo email and course website on LEARN daily during the term and to note any changes.

### Attendance Policy

While this course is designed to be completed asynchronously, there are three scenarios which require in-person meetings: Small Group critiques, Group meetings related to assignments, and individual or group meetings scheduled with the instructor. Students are expected to collaboratively schedule group activities at times that work for them. If you are unable to attend a scheduled meeting, inform your group members or instructor as soon as possible.

### **Instructor Contact**

I am available to answer questions outside of class. Please post questions and information that will benefit others to the 'Ask the Instructor' Discussion Board. Otherwise, please send an email with 'DEI 613' in the subject line so I can find your question quickly. Please allow 24-48 hours for a response. Messages received in the evenings and over weekends will be returned the next business day.

### **Materials and Software**

In this course, we will use a variety of digital and physical prototyping materials. ideation and prototyping materials. We recommend assembling a small Creative Toolkit (see Martin and Harrington, 21) to support your course Assignments and creative activities. In order for our creative work to align with current industry standards, we will be using Adobe Creative Suite (primarily Illustrator, and XD) for most of our course work, however you are welcome to use alternative software *with the approval of the instructor*. We will be using *Microsoft Teams* to support video conferences and group work. Please log in with your Waterloo credentials.

### **Workload**

This course involves weekly modules, readings, related activities, studio production, and discussion feedback. Therefore, the time commitment required to achieve the intended learning outcomes for this course is approximately 8 hours per week.

### **Software Tutorials**

To assist you in this course, we created a series of software tutorials to help those who are new to design. Tutorials will be created/curated by Greg McIntyre.

### **Academic Integrity**

In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect, responsibility, and ethical behaviour. See the [UWaterloo Academic Integrity webpage](#) for more information.

### **Plagiarism & Copyright Policy**

The offence of plagiarism as defined by Policy 71 (Student Discipline) includes visual and aural plagiarism of creative work (drawings, photographs, graphics, video, sound, graphics, or creative ideas conceived of, or made by others). The rules of conduct that apply to text-based work at the University of Waterloo also apply to work completed for creative assignments and research. There are two issues to consider with visual and aural plagiarism: ethics, i.e. expectations related to academic integrity as outlined in Policy 71; and copyright infringement, for which you could also be legally liable. Plagiarism and copyright infringement occur when you produce creative material that is substantially similar to the original source. Please take note of the following points:

- All work submitted for evaluation must be your own. If the submitted work is determined not to be your own, has been created by another on your behalf, or has been created for another context (i.e. another course, client work, etc.), the Academic Discipline Procedure of Policy 71 will be invoked.

- Design templates, software plug-ins, icon sets (FontAwesome, Noun Project, material.io icons, etc.), stock images, and other generative software may only be used with the expressed permission of the instructor. Any material that is not yours must be cited using a *Project Resource Form*. All projects must be accompanied by this form, even if you did not use any external sources.
- Any original material used as the basis for any work you create – whether manipulated digitally or manually, or otherwise incorporated or appropriated for your work as part of a conceptual idea – must be cited using a *Project Resource Form*.
- Resources that are available in the public domain are identified as copyright free or that fall under licenses from Creative Commons. Public domain is a term used for works that are not protected by copyright law. Works identified as Creative Commons allow varying degrees of use. In this case, the authors decide how you can use their content. For more information, see the guidelines on [creativecommons.org](https://creativecommons.org).

## Discipline

A student is expected to know what constitutes academic integrity, to avoid committing academic offences, and to take responsibility for their actions. A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about “rules” for group work/collaboration should seek guidance from the course professor, Associate Director, Graduate, or the Associate Dean, Graduate Studies. When misconduct has been found to have occurred, disciplinary penalties will be imposed under Policy 71 – Student Discipline. For information on categories of offenses and types of penalties, students should refer to [Policy 71 - Student Discipline](#). For typical penalties check [Guidelines for the Assessment of Penalties](#).

## Grievance

A student who believes that a decision affecting some aspect of their university life has been unfair or unreasonable may have grounds for initiating a grievance. Read [Policy 70 - Student Petitions and Grievances](#), Section 4. When in doubt, please be certain to contact your department’s administrative assistant who will provide further assistance.

## Appeals

A decision made or penalty imposed under Policy 70, Student Petitions and Grievances (other than a petition) or Policy 71, Student Discipline may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to [Policy 72, Student Appeals \(https://uwaterloo.ca/secretariat-general-counsel/policies-procedures-guidelines/policy-72\)](https://uwaterloo.ca/secretariat-general-counsel/policies-procedures-guidelines/policy-72).

## Note for Students with Disabilities

The [AccessAbility Services](#) office collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the AS office at the beginning of each academic term.

## Student Resources

[GLOW Centre for Sexual and Gender Diversity](#)



[Indigenous Student Centre](#)

[International and Canadian Student Network](#)

[Student Counseling Services](#)

[Student Success Office](#)

[The Women's Centre](#)

[Writing Centre](#)

[Other Writing Resources](#)

## **Mental Health Support**

### On Campus

- [Counselling Services](#): [counselling.services@uwaterloo.ca](mailto:counselling.services@uwaterloo.ca) / 519-888-4567 ext 32655
- [Health Services](#): located across the creek from the Student Life Centre

### Off campus, 24/7

- [First Nations and Inuit Hope for Wellness Help Line](#): Immediate help for all Indigenous peoples across Canada. Phone: 1-855-242-3310 or online chat at [hopeforwellness.ca](http://hopeforwellness.ca). Service available in Cree, Ojibway, Inuktitut, English, and French.
- [Good2Talk](#): Free confidential help line for post-secondary students. Phone: 1-866-925-5454
- [Grand River Hospital](#): Emergency care for mental health crisis. Phone: 519-749-433 ext. 6880
- [Here 24/7](#): Mental Health and Crisis Service Team. Phone: 1-844-437-3247
- [OK2BME](#): set of support services for queer teens in Waterloo. Phone: 519-884-0000 extension 213