UNIVERSITY OF TORONTO
FACULTY OF INFORMATION

MSL2303H The Digital Museum: From Strategy to Implementation

Semester: Winter 2020
Time: Mondays, 13:00 to 16:00
Location: Bissell 728
Office Hours: By appointment

Instructors:
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COURSE DESCRIPTION:
Digital technologies present exciting new opportunities for interaction with museum objects. They help forge unique and novel paths of meaning, and facilitate the creation of new museum publics. But they also unsettle the foundation of stability, materiality, and temporal order upon which many museums reside. This course explores the role of new and emerging digital technologies in the context of the contemporary museum experience. It is intended to provide students with the knowledge and skills to make informed decisions regarding opportunities and challenges afforded by digital technologies. Students in this course will investigate the impact of digital technologies on museums, their staff, their audiences, and their value propositions. Students will explore the adoption of user-centred, multi-channel approaches to content creation and distribution, and will consider the requisite digital skills and literacies that can inform responsible digital adoption, development, and transformation. From digital strategy to the practical aspects of project management and development of digital experiences, students will gain an overview of digital technologies in use by museum professionals. To ground this overview, students will participate in collaborative prototyping of digital experiences with our partners at the Ontario Science Centre. The development of these experiences will be supported by readings, case studies, planning exercises, technical demonstrations and tutorials, and guest speakers.

COURSE OBJECTIVES:
This course leverages resources within the broader iSchool community to facilitate opportunities for developing and strengthening digital and sociotechnical literacy among Museum Studies students. Additionally, it creates a reciprocal learning opportunity with a prominent cultural institution in Toronto, the Ontario Science Centre. This opportunity will provide a rich context for students to encounter course material in a realistic setting, and to expand their professional portfolios. The primary objective of this course is to equip students with the capacity to weigh the various means by which digital technologies support new ways of thinking and learning in museums.

COURSE LEARNING OUTCOMES:
Students who have successfully completed this course should be able to:

1. Understand the elements of a comprehensive digital strategy and explain the factors used to determine priorities and deliverables.
2. Identify the business models, infrastructure requirements, skill sets, and competencies required to execute digital transformation in a museum setting.
3. Model a multi-channel approach to content creation and distribution, including analysis and assessment of digital content systems.
4. Explain the role of digital in organizational initiatives such as community building, marketing and communications, education, public programming, outreach, exhibit curation, and archiving.
5. Understand the role of evaluation in making data-driven decisions regarding the development and implementation of digital initiatives in museums.
6. Understand user behaviour and expectations and their impact on decision making in a digital context.
7. Apply project management principles and practices in a digital development context.
8. Put into practice the creation of a digital experience by learning about and using new technologies that might include content management platforms, novel user interfaces, geospatial information systems, and 3D design software.
9. Think critically about the role of digital technologies in museums.
10. Evaluate the challenges that museum professionals face as new digital technologies are introduced to the environments in which they work.

PROGRAM LEARNING OUTCOMES:
Students in the MMSt program should familiarize themselves with the MMSt student learning outcomes, which can be found here: https://ischool.utoronto.ca/areas-of-study/master-of-museum-studies/. This course aligns with specific learning outcomes for the MMSt program. Specifically, it examines the history of digital technology in museums and, in the process, addresses a number of critical issues facing cultural institutions. In doing so, it provides an opportunity to both understand and develop best practices for the use of cutting edge digital technologies in museum exhibits. Upon successful completion of this course, students should be able to innovate in the face of new digital challenges and opportunities, a key learning outcome of the MMSt program.

RELATIONSHIP BETWEEN COURSE AND PROGRAM OUTCOMES:
Understanding digital strategies and identifying the requirements needed to implement digital transformations in museum settings (two course learning outcomes) are tightly integrated with the capacity to "organize processes involving people, financial and physical resources in order to actualize programmes, projects, buildings and revitalization plans," a key program learning outcome. Understanding and evaluating user behaviour and expectations (two additional course learning outcomes) requires that students learn to "use appropriate methods to assess on-going project development and to evaluate achievements and effects of museum activities," another important learning outcome of the MMSt program. Applying project management principles and practices (a course learning outcome) is a crucial facet of learning to "work in and manage groups and interpersonal relations" (an MMSt program learning outcome).

COURSE ORGANIZATION AND CLASS STRUCTURE:
Each week's class will be comprised of a short lecture providing an overview of the week's themes, a group discussion, and a collaborative design exercise or in-depth tutorial. Students are expected to read the required readings, attend all classes, contribute to discussion, and participate in all activities. The course structure will mix elements of a graduate seminar with iterative design processes. We will open each class with a discussion of the course texts and their background. This conversation will generally take up around half of each class. Students will help contextualize this discussion by identifying themes and questions from the readings and relating them to topical issues. The remaining half of each class will

be an opportunity for students to directly engage with the course material and put it into conversation with specific digital technologies through design exercises and technical tutorials that will be carried out each week. This will introduce students to the various digital technologies that are under discussion, providing them with a comprehensive overview of how specific digital technologies operate, as well as how they can be deployed in museum contexts. Students are strongly encouraged to bring a laptop to class. Additional technical resources will be provided courtesy of the Student Tech Fund and the KMDI-Semaphore Labs.

WEEKLY READINGS & CLASS SCHEDULE:
There is no required textbook for this course. Digital copies of all readings will be uploaded (or linked to) on Quercus.

Please note that additional readings may be assigned or recommended each week. Students are advised to attend class, read notices on Quercus, and consult the final slide of each week's lecture presentation for information about any additional readings.

Week 1. January 6
Introduction
Themes: Overview of the course themes; intro to contemporary digital technology in museums.
Readings (to be discussed in week 2):
• M. P. Edson, *Dark matter*, 2014. [Online]. Available: https://medium.com/code-words-technology-and-theory-in-the-museum/dark-matter-a6c7430d84d1
• J. Carding, *Changing museums*, 2015. [Online]. Available: https://medium.com/code-words-technology-and-theory-in-the-museum/changing-museums-f82c98f33f92
• J. Visser, *Museums in times of social and technological change*, 2014. [Online]. Available: http://themuseumofthefuture.com/2014/04/18/museums-in-times-of-social-and-technological-change/

Week 2. January 13
History
Themes: History of digital technology in museums.
Readings:
• K. Jones-Garmil, "Laying the foundation: Three decades of computer technology in the museum," in *The Wired Museum: Emerging Technology and Changing Paradigms*, K. Jones-Garmil, Ed., American Association of Museums Washington, DC, 1997, pp. 36–37
• K. B. Jones, "The transformation of the digital museum," in *Museum Informatics: People, Information, and Technology in Museums*, P. F. Marty and K. B. Jones, Eds., Routledge, 2012, pp. 25–42
• R. Parry, *Recoding the museum: Digital heritage and the technologies of change*. Routledge, 2007, chapter 1

Week 3. January 20
AT ONTARIO SCIENCE CENTRE
Digital Strategy
Themes: Digital strategy today; digital project management.
Readings:
• L. Johnson, S. A. Becker, M. Cummins, *et al.*, "Nmc horizon report: 2016 museum edition," The New Media Consortium, Tech. Rep., 2016. [Online]. Available: http://cdn.nmc.org/media/2016-nmc-horizon-report-museum-EN.pdf
• R. Stein, "Museums and digital strategy today," 2017. [Online]. Available: https://www.aam-us.org/2017/07/10/museums-and-digital-strategy-today/
• D. Peacock, "Making ways for change: Museums, disruptive technologies and organisational change,"

Museum Management and Curatorship, vol. 23, no. 4, pp. 333–351, 2008

Week 4. January 27
Digitization
Themes: Object scanning; 3D design; reproduction, representation, and authenticity.
Readings:
• W. Benjamin, *The work of art in the age of mechanical reproduction*. Penguin UK, 2008
• K. Hamma, "Public domain art in an age of easier mechanical reproducibility," *Art Libraries Journal*, vol. 31, no. 3, pp. 11–15, 2006
• R. E. Hollinger, E. John Jr, H. Jacobs, *et al.*, "Tlingit-smithsonian collaborations with 3D digitization of cultural objects," *Museum Anthropology Review*, vol. 7, no. 1-2, pp. 201–253, 2013
• L. Steinbach, "3D or not 3D? is that a question?" *Curator: The Museum Journal*, vol. 54, no. 1, pp. 41–54, 2011

Week 5. February 3
AT ONTARIO SCIENCE CENTRE
Interfaces and Interaction
Themes: Experience and interaction design; inclusive design; seamless and seamful interfaces.
Readings:
• S. Chan and A. Cope, "Strategies against architecture: Interactive media and transformative technology at the cooper hewitt, smithsonian design museum," *Curator: The Museum Journal*, vol. 58, no. 3, pp. 352–368, 2015
• J. H. Chu, P. Clifton, D. Harley, *et al.*, "Mapping place: Supporting cultural learning through a lukasa-inspired tangible tabletop museum exhibit," in *Proceedings of the Ninth International Conference on Tangible, Embedded, and Embodied Interaction*, ACM, 2015, pp. 261–268
• M. de Vet and J. van Kregten, *Touch van gogh and be touched - how new media are transforming the way we present complex research*, 2014. [Online]. Available: https://mw2014.museumsandtheweb.com/paper/touch-van-gogh-and-be-touched-how-new-media-are-transforming-the-way-we-present-complex-research/

Week 6. February 10
ASSIGNMENT 1 DUE
Digital Realities
Themes: Augmented, mixed, and virtual reality; immersive interaction; multisensory digital exhibits.
Readings:
• S. Kenderdine, "'Pure land": Inhabiting the Mogao caves at Dunhuang," *Curator: The Museum Journal*, vol. 56, no. 2, pp. 199–218, 2013
• A. Damala, T. Schuchert, I. Rodriguez, *et al.*, "Exploring the affective museum visiting experience: Adaptive augmented reality (a2r) and cultural heritage," *International Journal of Heritage in the Digital Era*, vol. 2, no. 1, pp. 117–142, 2013
• J. Rae and L. Edwards, *Virtual reality at the british museum: What is the value of virtual reality environments for learning by children and young people, schools, and families?* 2016. [Online]. Available: https://mw2016.museumsandtheweb.com/paper/virtual-reality-at-the-british-museum-what-is-the-value-of-virtual-reality-environments-for-learning-by-children-and-young-people-schools-and-families/

Reading Week February 17-21

Week 7. February 24
AT ONTARIO SCIENCE CENTRE
Mobile
Themes: Apps; navigation; mobile games; mobile engagement beyond the museum.
Readings:
• A. Burnette, R. Cherry, N. Proctor, *et al.*, *Getting on (not under) the mobile 2.0 bus: Emerging issues in the mobile business model*, 2011. [Online]. Available: https://www.museumsandtheweb.com/mw2011/papers/getting_on_not_under_the_mobile_20_bus
• N. Proctor, *The museum is mobile: Cross-platform content design for audiences on the go*, 2010. [Online]. Available: https://www.museumsandtheweb.com/mw2010/papers/proctor/proctor.html
• S. Kounaves, L. Archer, H. King, *et al.*, "Science learning and engagement in the digital age: Understanding the effect of mobile technology on adult engagement experiences at a natural history museum," in *Mobile Learning Futures–Sustaining Quality Research and Practice in Mobile Learning, Proceedings of the 15th World Conference on Mobile and Contextual Learning, m-Learn.*, L. E. Dyson, W. Ng, and J. Fergusson, Eds., 2016

Week 8. March 2
AT ONTARIO SCIENCE CENTRE
Evaluation
Themes: Audience research; usability studies; defining and measuring success.
Readings:
• K. Boehner, P. Sengers, and G. Gay, "Affective presence in museums: Ambient systems for creative expression," *Digital Creativity*, vol. 16, no. 2, pp. 79–89, 2005
• L. M. Scolere, E. P. Baumer, L. Reynolds, *et al.*, "Building mood, building community: Usage patterns of an interactive art installation," in *Proceedings of the 19th International Conference on Supporting Group Work*, ACM, 2016, pp. 201–212
• M. Konstantakis, K. Michalakis, J. Aliprantis, *et al.*, "Formalising and evaluating cultural user experience," in *12th International Workshop on Semantic and Social Media Adaptation and Personalization (SMAP)*, IEEE, 2017, pp. 90–94
• E. Hornecker and L. Ciolfi, *Human-computer interactions in museums*. Morgan & Claypool Publishers, 2019, chapter 5

Week 9. March 9
Engagement
Themes: Digital engagement with the broader public; social media; "instagram-ready" exhibits.
Readings:
• M. Ridge, "From tagging to theorizing: Deepening engagement with cultural heritage through crowdsourcing," *Curator: The Museum Journal*, vol. 56, no. 4, pp. 435–450, 2013
• R. Stein, "Chiming in on museums and participatory culture," *Curator: The Museum Journal*, vol. 55, no. 2, pp. 215–226, 2012
• P. F. Marty, "Museum websites and museum visitors: Before and after the museum visit," *Museum Management and Curatorship*, vol. 22, no. 4, pp. 337–360, 2007

Week 10. March 16
AT ONTARIO SCIENCE CENTRE
Museum as Data
Themes: Museum as a site of data; data-driven museum experiences; visualizing museum data.
Readings:

• M. Battles and M. Maizels, “Collections and/of data: Art history and the art museum in the DH mode,” in *Debates in the Digital Humanities*, L. Klein and M. K. Gold, Eds., University of Minnesota Press, 2016, pp. 325–344
• M. Battles, *Specimens*, 2013. [Online]. Available: https://aeon.co/essays/a-museum-s-cabinet-of-curiosities-is-also-a-chamber-of-secrets
• T. Navarrete and J. M. Owen, “The museum as information space: Metadata and documentation,” in *Cultural Heritage in a Changing World*, Springer, 2016, pp. 111–123

Week 11. March 23
Critiques
Themes: The attention economy; digital exclusion; ethics of digital transformation.
Readings:
• A. R. Olesen, “For the sake of technology? the role of technology views in funding and designing digital museum communication,” *Museum Management and Curatorship*, vol. 31, no. 3, pp. 283–298, 2016
• S. Colley, “Ethics and digital heritage,” in *The Ethics of Cultural Heritage*, T. Ireland and J. Schofield, Eds., Springer, 2015, pp. 13–32
• G. Isaac, “Technology becomes the object: The use of electronic media at the national museum of the american indian,” *Journal of Material Culture*, vol. 13, no. 3, pp. 287–310, 2008

Week 12. March 30
ASSIGNMENT 2 PRESENTATIONS
Museum Digital Future(s)
Themes: Museums of the future; affordances of digital engagement.
Readings:
• R. Parry, “The end of the beginning: Normativity in the postdigital museum,” *Museum Worlds*, vol. 1, no. 1, pp. 24–39, 2013

COURSE ASSIGNMENTS AND EVALUATION:
There will be two major assignments throughout the course. Each of these assignments is designed to provide materials that can be useful toward portfolio development. Each assignment will be discussed in detail in class, and sufficient time will be given to work on assignments and solicit feedback from peers and the instructors. Creative interpretations of each assignment are encouraged!

For **Assignment One**, students will select an application of a contemporary technology (e.g. augmented reality exhibit; social media campaign; digitized and 3D-printed touchables) and produce a step-by-step instructional workflow describing its possible deployment in a museum experience. This will require iterative design and prototyping, familiarization with best practices, and consideration of a target audience for the instructional content (e.g. secondary school teachers; exhibit designers). The various components that should be presented may include required materials, design considerations, programming code, assembly images, etc. For inspiration, consult https://www.instructables.com/howto/museum+exhibit/. This is an individual assignment, and can be submitted in a variety of formats, including a white paper-style report (minimum 6 pages of written text), a web-based instructional or PowerPoint-type presentation (with a minimum of 10 distinct sections), and even a YouTube-style video (approximately 10:00 in length). Examination of the implications for developing such an experience should be laid out in detail, including any new “best practices” that museum professionals doing similar work might employ. This assignment will be due on February 10, and will be worth **30% of the final grade**.

For **Assignment Two**, students will work in groups to produce a prototype of a wayfinding experience for

the Ontario Science Centre. This will entail developing maps, tours, content, and spatial tools that make use of interactive digital technologies (possibly including, but not limited to, augmented/virtual reality, mobile applications, interactive displays, etc.). Prototypes will be developed collaboratively over the course of the semester, and will have multiple components. These include:

- A verbal pitch to the class.
- In-class prototype development.
- On-site observation and user testing (if possible).
- Developed metrics for evaluation.
- Group presentation.

These steps will be assessed as *collaborative group work*, and will be worth **75% of the assignment's value**. Prototypes will be presented during the final class within an allocated period of time. All group members will be expected to present, as well as be available to answer questions. Additionally, each student will be expected to submit a summary report (max. 6 pages with 3 images) detailing their specific contribution to the project, reflecting on their experience, outlining possible best practices for related future work, and presenting new issues or opportunities for related developments. This *individual* report will be worth **25% of the assignment's value**, and will be due on April 6th. In total, Assignment Two will be worth **60% of the final grade**.

DISCUSSION:
Participating in discussion is a crucial element of the MMSt experience. For this course, students will be rewarded for contributing meaningfully to discussion, engaging with peers, and fostering a collaborative learning environment. Students will be expected to respond to topical questions that will be listed at the end of each week's lecture slides. They may respond to these questions in class, or in a discussion forum which will be hosted on Quercus. Each student will be expected to provide at least five responses throughout the semester in order to earn **10% of the final grade**. Accommodations will be made for a range of learning and communication styles.

LATE ASSIGNMENTS & INCOMPLETE GRADES:
All assignments are to be uploaded on Quercus. Extensions are at the discretion of the instructors. Assignments must be submitted by end-of-day on the due dates indicated above. Late assignments will be deducted 10% of the value of the assignment per week, starting the day after the due date. Please note that there are no extensions beyond the last day of class without approval from the instructors.

CLASS CONDUCT AND EXPECTATIONS:
Students are expected to conduct themselves in a manner respectful of their instructors and peers. This includes, at a minimum:

- Taking responsibility for their experience in the course, including coming to class prepared, being open to criticism and feedback, and being willing to engage creatively with the course themes and materials.
- Arriving on time - class starts at 1:10 pm sharp. If arriving late, please enter the classroom without disruption.
- Turning off cell phone ringers upon arrival, as well as using phones and electronic devices appropriately.
- Communicating with others as one would expect to be communicated with, including not interrupting or speaking when someone else has the floor; respecting diverse identities, pronouns, and expressions of gender; and engaging in civil and mature dialogue.

EMAIL COMMUNICATION:

During the academic year, we receive a considerable amount of email. In order for us to respond to email efficiently, we ask that students please follow these guidelines:

1. If you cannot make an appointment to meet with one of us outside of class, please set aside some time before class and email us to let us know that you would like to meet. We will try to respond as soon as possible, but cannot usually accommodate a meeting with less than 48 hours notice.
2. We usually do not read or reply to email after 5 PM or on weekends.
3. Follow instructions for turning in assignments.
4. Grade inquiries and disputes will not be considered or discussed via email. For all grade inquiries and questions about assignments, please set up an appointment with us.
5. We will not reply to email inquiries regarding course matters (assignment requirements, due dates, readings, etc.) that arise from missing class or inattention to the course syllabus and Quercus messages. Inquiries requesting clarification will receive replies, though we would strongly prefer for these inquiries to be made in class or through an appointment.

WRITING SUPPORT:
As stated in the Faculty of Information's Grade Interpretation Guidelines, "work that is not well written and grammatically correct will not generally be considered eligible for a grade in the A range, regardless of its quality in other respects." With this in mind, please make use of the writing support provided to graduate students by the SGS Graduate Centre for Academic Communication. The services are designed to target the needs of both native and non-native speakers, and all programs are free. Please consult the current workshop schedule (https://www.sgs.utoronto.ca/resources-supports/gcac/current-terms-courses/) for more information.

ACADEMIC INTEGRITY:
Academic integrity is essential to the pursuit of learning and scholarship in a university, and to ensuring that a degree from the University of Toronto is a strong signal of each student's individual academic achievement. As a result, the University treats cases of cheating and plagiarism very seriously. Please consult the University's site on academic integrity: http://academicintegrity.utoronto.ca/. The Faculty of Information has a zero-tolerance policy on plagiarism as defined in section B.I.1.(d) of the University's Code of Behaviour on Academic Matters (http://www.governingcouncil.utoronto.ca/Assets/Governing+Council+Digital+Assets/Policies/PDF/ppjun011995.pdf). You should acquaint yourself with the Code. All suspected cases of academic dishonesty will be investigated following procedures outlined in the Code of Behaviour on Academic Matters. If you have questions or concerns about what constitutes appropriate academic behaviour or appropriate research and citation methods, you are expected to seek out additional information on academic integrity from your instructors or from other institutional resources.

Please also review the material in "Cite it Right" and, if you require further clarification, consult the following site for information on how not to plagiarize: http://advice.writing.utoronto.ca/wp-content/uploads/sites/2/how-not-to-plagiarize.pdf. Cite it Right covers relevant parts of the U of T Code of Behaviour on Academic Matters (1995). It is expected that all Faculty of Information students take the Cite it Right workshop and the online quiz. Completion of the online Cite it Right quiz should be made prior to the second week of classes. To review and complete the workshop, visit the orientation portion of the iSkills site: https://inforum.library.utoronto.ca/workshops/orientation.

COPYRIGHT IN INSTRUCTIONAL SETTINGS:
If a student wishes to audio record, photograph, video record, or otherwise reproduce lecture presentations, course notes, or other similar materials provided by instructors, they must obtain the instructors' written consent beforehand. Otherwise, all such reproduction is an infringement of copyright and is absolutely prohibited. In the case of private use by students with disabilities, the instructors' consent will not be unreasonably withheld. For more information on copyright and the University of Toronto, please visit the

following page: https://onesearch.library.utoronto.ca/copyright/resources.

ACCOMMODATIONS:
Students with diverse learning styles and needs are welcome in this course. If you have a disability or a health consideration that may require accommodations, please feel free to approach Student Services and/or the Accessibility Services Office (http://www.studentlife.utoronto.ca/as) as soon as possible. The Accessibility Services staff are available by appointment to assess needs, provide referrals, and arrange appropriate accommodations. The sooner you let us know your needs, the quicker we can assist you in achieving your learning goals in this course.

IMPORTANT ACADEMIC DATES:
https://ischool.utoronto.ca/current-students/academic-resources/academic-calendar/

INFORMATION ABOUT FACULTY OF INFORMATION WORKSHOPS:
The following workshop series is exclusively available to the iSchool community. Faculty of Information professors, Inforum librarians, current students, alumni, and a collective of professionals and academics from each program and concentration, work together to create these unique rosters.

Together with the MMSt and MI curricula, these academic, professional, and technical iSkills workshops provide a robust information and heritage graduate educational experience: https://inforum.library.utoronto.ca/workshops/iSkills.

In an effort to ensure your success at the Faculty of Information, key information and skills that all Faculty of Information students must possess, regardless of program or concentration, are covered in these online orientation workshops: https://inforum.library.utoronto.ca/workshops/orientation.

STATEMENT OF ACKNOWLEDGEMENT OF TRADITIONAL LAND:
For thousands of years, the land on which the University of Toronto operates has been the traditional home of the Huron-Wendat, the Seneca, and the Mississaugas of the Credit River. Today, this meeting place is still home to many Indigenous people, and we are grateful to have the opportunity to work here.