

CRI 750 • Emerging Technologies in Cyberspace • Winter 2018

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Section / Time / Classroom	Section 011 / Wednesdays 12:00 pm to 3:00 pm / ILC100
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Please include "CRI 750" in the subject line of all emails. Emails usually answered within 48 hours. Only Ryerson e-mail accounts to be used for communication between faculty and students. All news (announcements) posted on class D2L.	

Course Description

The rapid introduction and applications of emerging digital technologies and online services are challenging and in many cases overturning traditional modes of creation, marketing and dissemination in the Creative Industries and many of the business models based upon them. At the same time new opportunities are emerging for the enterprising creator and the creative enterprise. This course will explore what is on and just over the horizon with the intention of cultivating students' ability to recognize and exploit the possibilities inherent in technological change while minimizing the risks that they pose to established practices.

Course Objectives

By the end of the course, students will be able to:

- Recall and apply forecasting tools and methods to follow technological trends, and document findings [1(a)R]
- Identify technological trends that can impact/influence the creative industries [7R]
- Combine emerging technologies with their creative industries field into new products, services and/or businesses [7P]
- Clearly and persuasively communicate their vision to investors, customers, employees, community and governmental organizations [4(c)R]

Related to the following Creative Industries Educational Goal(s):

Introduction (I), Reinforcement (R), Proficiency (P)

- 1)... contribute productively to the Creative Industries by
 - a) critically analyzing and synthesizing knowledge of the technological environment
- 4) ...communicate and persuasively in
 - c) in presentations using a range of appropriate media






7) ... design strategies to address emerging technologies and applications that are reshaping creative and business processes and market environments in order to assist creative enterprises to recognize and respond to technological change


Required Readings and Resources





IMPORTANT: Students are expected to complete required readings prior to the lecture.






- ❑ Textbook - Sommers, C. (2012). *Think like a futurist : know what changes, what doesn't, and what's next*. San Francisco: Jossey-Bass.
- ❑ Articles - Listed in the Weekly schedule, made available through the e-resources in the course's D2L shell

Weekly Schedule (Subject to change)






WEEK 1 - January 17, 2018	
 TOPICS	Overview - Course outline, assignments, important dates Introduction <ul style="list-style-type: none"> ❑ What are opportunities? ❑ What is cyberspace? ❑ Technology trends ❑ Tools & methods for predicting the future Opportunities for innovation
 WORKSHOP	How would you predict the future?
 DISCUSS	Technology trends
 READINGS	<ul style="list-style-type: none"> ❑ Sommers, C. (2012). <i>Think like a futurist: know what changes, what doesn't, and what's next</i>. San Francisco: Jossey-Bass. Ch. 1 & 2 ❑ Popper, R. (2008). How are foresight methods selected?. <i>foresight</i>, 10(6), 62-89. ❑ Slaughter, R. A. (1993). Looking for the real 'megatrends'. <i>Futures</i>, 25(8), 827-849. doi:10.1016/0016-3287(93)90033-P
 DUE	Before first class: <ul style="list-style-type: none"> ❑ Welcome survey

WEEK 2 - January 24, 2018	
 TOPICS	Business side <ul style="list-style-type: none"> ❑ User technology adoption ❑ Online business models ❑ Revisiting the Business model canvas Creative destruction







	Marketing & successfully launching innovations
 WORKSHOP	Business model canvas Consumer trend canvas
 DISCUSS	How to complement the BMC with the CTC?
 READINGS	<input type="checkbox"/> Sommers, C. (2012). <i>Think like a futurist: know what changes, what doesn't, and what's next</i> . San Francisco: Jossey-Bass. Ch. 3 & 4 <input type="checkbox"/> Consumer Trend Canvas (May, 2014) Trendwatching - Trend Briefing. Retrieved from: http://trendwatching.com/trends/consumertrendcanvas/
 DUE	<input type="checkbox"/> Quiz on readings

WEEK 3 - January 31, 2018	
 TOPICS	Tools & methods for predicting the future <input type="checkbox"/> Futurologists <input type="checkbox"/> Trend-watching <input type="checkbox"/> Scenarios <input type="checkbox"/> Mood boards <input type="checkbox"/> C-K Theory <input type="checkbox"/> Conceptual blending <input type="checkbox"/> TRIZ <ul style="list-style-type: none"> • Ideality • Laws of evolution • 9 windows
 WORKSHOP	<input type="checkbox"/> C-K Theory <input type="checkbox"/> TRIZ 9 windows
 DISCUSS	Can we predict the future?
 READINGS	<input type="checkbox"/> Methods and Approaches of Futures Studies, retrieved from: http://www.crab.rutgers.edu/~goertzel/futuristmethods.htm <input type="checkbox"/> Hatchuel, A., & Weil, B. (2003). A new approach of innovative Design: an introduction to CK theory. In <i>DS 31: Proceedings of ICED 03, the 14th International Conference on Engineering Design, Stockholm</i> . <input type="checkbox"/> Domb, E. Evaluate - and Solve - Your Problem Through 9 Windows. <i>The triz journal</i> , retrieved from: https://triz-journal.com/innovation-tools-tactics/incremental-innovation-tools/evaluate-solve-problem-9-windows/ <input type="checkbox"/> Fey, V.R. & Rivin, E.I. (1999). Guided Technology Evolution (TRIZ Technology Forecasting). <i>The triz journal</i> , retrieved from: https://triz-journal.com/guided-technology-evolution-triz-technology-forecasting/
 DUE	<input type="checkbox"/> Quiz on readings

WEEK 4 - February 7, 2018


 TOPICS	Technology side <input type="checkbox"/> Technology watch tools & methods <input type="checkbox"/> Technology lifecycle <input type="checkbox"/> Assessing technologies SWOT
 WORKSHOP	Technology watching
 DISCUSS	Technology lifecycles of known products
 READINGS	Sommers, C. (2012). <i>Think like a futurist: know what changes, what doesn't, and what's next</i> . San Francisco: Jossey-Bass. Chapters 7, 8 & 9
 DUE	<input type="checkbox"/> Quiz on readings <input type="checkbox"/> Idea journal contributions






WEEK 5 - February 14, 2018

 TOPICS	New technologies + fashion <input type="checkbox"/> Wearables <input type="checkbox"/> 3D printing <input type="checkbox"/> Nanomaterials
 WORKSHOP	New technologies + fashion
 PRESENT	Technology presentation – Teams 1, 2 & 3
 READINGS	<input type="checkbox"/> Smith, D. M., & Plummer, D. C. (May, 2017). Digital Disruption and the New Disruptors: Recognize, Prioritize and Respond - A Gartner Trend Insight Report. Retrieved from https://www.gartner.com/doc/reprints?id=1-44KMCRR&ct=170629&st=sb <input type="checkbox"/> Pratap, K. (2017, June 27). Boltt Wants to Be Your Digital Fitness Coach With an AI Play. Retrieved from https://gadgets.ndtv.com/wearables/features/boltt-wearables- health-tracker-fitness-coach-ai-artificial-intelligence-1716216
 DUE	<input type="checkbox"/> Technology presentation & report A <input type="checkbox"/> Idea journal contributions
 VISIT	Fashion Zone







Study Week (no classes) - February 21, 2018

WEEK 6 - February 28, 2018



 TOPICS	New technologies + interior design <input type="checkbox"/> Virtual reality / Augmented reality
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		<input type="checkbox"/> 3D printing <input type="checkbox"/> Internet of Things
	WORKSHOP	New technologies + interior design
	PRESENT	Technology presentation – Teams 4, 5 & 6
	READINGS	<input type="checkbox"/> Sommers, C. (2012). <i>Think like a futurist: know what changes, what doesn't, and what's next</i> . San Francisco: Jossey-Bass. Ch. 10 & 11 <input type="checkbox"/> Automania! (October, 2016) Trendwatching - Global Trend Briefing. Retrieved from: http://trendwatching.com/trends/automania/
	DUE	<input type="checkbox"/> Quiz on readings <input type="checkbox"/> Idea journal contributions
	VISIT	Design Fabrication Zone

WEEK 7 - March 7, 2018







	TOPICS	New technologies + music & performance arts <input type="checkbox"/> Robotics <input type="checkbox"/> Internet of Things <input type="checkbox"/> Holographic projections
	WORKSHOP	New technologies + music & performance arts
	PRESENT	Technology presentation – Teams 7, 8 & 9
	READINGS	<input type="checkbox"/> Sommers, C. (2012). <i>Think like a futurist: know what changes, what doesn't, and what's next</i> . San Francisco: Jossey-Bass. Ch. 6 <input type="checkbox"/> Select one of the cases in this website: https://www.microsoft.com/inculture/musicxtech/
	DUE	<input type="checkbox"/> Quiz on readings <input type="checkbox"/> Idea journal contributions
	VISIT	DMZ

WEEK 8 - March 14, 2018


	TOPICS	New technologies + journalism & publishing <input type="checkbox"/> Artificial intelligence <input type="checkbox"/> Machine learning <input type="checkbox"/> User interfaces
	WORKSHOP	New technologies + journalism & publishing






 PRESENT	Technology presentation – Teams 10, 11 & 12
 READINGS	<ul style="list-style-type: none"> <input type="checkbox"/> Sommers, C. (2012). <i>Think like a futurist: know what changes, what doesn't, and what's next</i>. San Francisco: Jossey-Bass. Ch. 12 <input type="checkbox"/> Tzur, O. (2017, June 29). How artificial intelligence could revolutionise publishing. Retrieved from https://mediatel.co.uk/newsline/2017/05/09/how-artificial-intelligence-could-revolutionise-publishing/ <input type="checkbox"/> Raab, D. (2017, September 20). A Practical Guide to Artificial Intelligence. Retrieved from http://www.pubexec.com/post/practical-guide-artificial-intelligence-publishers/
 DUE	<ul style="list-style-type: none"> <input type="checkbox"/> Technology presentation & report B <input type="checkbox"/> Idea journal contributions
 VISIT	iBoost

WEEK 9 - March 21, 2018






 TOPICS	New technologies + storytelling <input type="checkbox"/> Other online opportunities (gaming, infotainment, content distribution, etc.)
 WORKSHOP	New technologies + storytelling
 PRESENT	Technology presentation – Teams 13, 14 & 15
 READINGS	<ul style="list-style-type: none"> <input type="checkbox"/> Rollwagen, I., Hofmann, J., & Schneider, S. (2008). Improving the business impact of foresight. <i>Technology Analysis & Strategic Management</i>, 20(3), 337-349. doi:10.1080/09537320802000070 <input type="checkbox"/> Zimmerman, D. (2017, March 10). Actiongram says hello to Sanrio's Hello Kitty and friends. Retrieved November 26, 2017, from https://blogs.windows.com/devices/2017/02/14/actiongram-says-hello-sanrios-hello-kitty-friends/ <input type="checkbox"/> Bray, B. (2017, July 06). How-to: Spectator View, a new tool to help others see what you see in HoloLens. Retrieved November 26, 2017, from https://blogs.windows.com/devices/2017/02/13/spectator-view-new-tool-help-others-see-see-hololens/
 DUE	<ul style="list-style-type: none"> <input type="checkbox"/> Quiz on readings <input type="checkbox"/> Idea journal contributions
 VISIT	TMZ

WEEK 10 - March 28, 2018


 TOPICS	New technologies + film, visual culture <input type="checkbox"/> Other online opportunities (gaming, infotainment, content distribution, etc.)
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	WORKSHOP	New technologies + film, visual culture
	PRESENT	Technology presentation – Teams 16, 17 & 18
	READINGS	TBD
	DUE	<input type="checkbox"/> Quiz on readings <input type="checkbox"/> Idea journal contributions
	VISIT	MakerSpace in SLC

WEEK 11 - April 4, 2018

	TOPICS	New technologies + curatorial practices
	WORKSHOP	New technologies + curatorial practices
	READINGS	TBD
	DUE	<input type="checkbox"/> Quiz on readings <input type="checkbox"/> Idea journal contributions
	VISIT	Science Discovery Zone

WEEK 12 - April 11, 2018

	PRESENT	Final presentations - Innovative opportunity in tech & creative industries (with panel of “investors”)
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Final presentation - April 11, 2018
Personal reflection - April 18, 2018

Assignments, Evaluation, Marking

Assignment	Format	Due Date	Final Grade
		Start of class unless noted	%
1. Quiz on readings	Individual	Every week before class (exceptions will be noted in D2L)	15
2. Idea journal (trends & opportunities)	Individual	Weekly (from Week 4)	10
3. Technology presentation & report A	Team	Week 5 - February 14, 2018	10
4. Technology presentation & report B	Team	Week 8 - March 14, 2018	10
5. Final prototype	Individual	April 11, 2018	20
6. Final presentation (pitch)	Individual	April 11, 2018	10
7. Personal reflection	Individual	April 18, 2018	10

Class participation	Individual	Every class	15
Bonus	Individual	Twice during the semester	2 (x3)

Description of Assignments

Please note that additional details / information on assignments may be posted on the Course D2L. Different sections may assign students for team projects in different ways. Professors reserve the right to (re)assign students to balance numbers and skills.

❑ Assignment #1 - Quiz on readings

- Every week there will be a Quiz to verify comprehension of assigned readings.
- The quiz will be available through D2L the weekend before class.
- The quiz will can take between 10 and 20 minutes to complete, make sure you have read the papers before, and take time to complete the quiz (do not wait until the day of the class).
- Quizzes will be mostly graded automatically in D2L (true/false and multiple choice questions), but there may also be open-ended questions that will be graded manually.

❑ Assignment #2 - Idea journal

- Students will be asked to keep an idea journal to document identified trends & new opportunities for creative industries technologies.
- Every week, students will be asked to provide feedback on one of their classmates' ideas.
- Journal entries should include: technology, source, opportunity.
- Minimum 3 (three) entries per week.
- This assignment will be assessed on the following dimensions: 50% own submission (3 entries with complete information), 50% review of classmates' journal.

❑ Assignments #3 & 4 - Technology presentation & report

- Students must form a team from the following list:

Assignment 3 (due: Week 5)	
Week / Topic A	
5	Wearables
	3D printing
	Nanomaterials
6	Virtual reality
	Augmented reality
	Internet of Things
7	Robotics
	Internet of things
	Holographic projections

Assignment 4 (due: Week 8)	
Week / Topic B	
8	Artificial intelligence
	Machine learning
	User interfaces
9	Engines
	Gaming
	Content distribution
10	Cloud
	Blockchain
	Drones

- Selection of topics and stances are first come, first served, so make sure you register promptly to be on the team you're most interested.

- All students registered in the same topic/stance will be on a team. We will create a group in D2L for every team.
- As a team, research the topic to prepare a report & presentation for your class. It should cover:
 - o Introduction – what it is, how it works (40%)
 - o Current applications (15%)
 - o Opportunities (20%)
 - o Challenges (15%)
 - o References – academic and technical (10%)
- Upload the report and presentation to D2L.

❑ Assignment #5 - Final prototype

- From the exercises in class, and your idea journal, select one idea that you'd like to develop.
- Prepare a prototype (can be digital or physical) to be presented in a "fair"

❑ Assignment #6 - Final presentation

- Prepare a 2 minute pitch of your concept and prototype (time will be strictly kept)
- During the fair, you'll have to present your pitch to visitors.
- Visitors feedback will be considered for the grade (appeal, creativity, feasibility, market potential)

❑ Assignment #7 - Personal reflection

- The final essay is a personal reflection on the lessons learned in the class.
- Follow a Review-Reflect-Recreate pattern; include: an overview of topics discussed in class, connections you identify, how you can apply the new knowledge, and the most interesting take-away from the course.
- 1200-2000 words. Submit through TurnItIn, verify there is no plagiarism before final submission.
- This assignment will be assessed on the following dimensions:
 - o Quality of writing - 30%
 - o Review-Reflect-Recreate - 40%
 - o Insights (application of theory) - 30%

❑ Class participation

- Students will get all the points for this rubric by attending all lectures, actively participating in class discussion (provide positive feedback to fellow students, asking questions, providing responses or sharing experiences), and posing questions to guest speakers.

❑ Bonus (max. 6%)

- o Opportunities for Bonus marks will be published on D2L as announcements, and discussed in class by your professor.

Handing in Papers / Late Policy / Other Relevant Information

- It is the student's responsibility to contact the professor or the Academic Manager, Student Affairs (Paula) or the Student Affairs Assistant (Angella) promptly concerning any situation that may have an adverse impact upon his/her academic performance as soon as the issue becomes known. Please note that when a student formerly requests consideration on health grounds the University requires a Health Certificate of letter from an appropriate health professional to be submitted to the School (in this case, Paula or Angella). The form can be found <http://www.ryerson.ca/senate/forms/medical.pdf>
- Any considerations for academic accommodation for religious reasons must be requested by the end of the second week of the term.
- We expect that all communications by e-mail and in person between students, their colleagues, and instructors will be civil and professional as per *Senate Policy #61*.
- Grades are posted on the D2L. Not all materials submitted for marking will be returned, so make extra copies for your records.
- Assignments submitted late, without extension, will result in a penalty of (5% deducted per day, 10% for a weekend). Do not wait until the last moment to submit your paper. Allow for technical glitches. Missed presentations without permission will result in a 0;
- Check with your individual professor to see if they require hard copies or not of the assignments.
- Students are required to retain a copy of all work undertaken as well as *all rough materials, references, sources, and notes* until the marked original has been returned.
- The professors reserve the right to modify the syllabus and assignments as required over the course of the term, but any changes to the course assignments, due dates, and/or grading scheme will be discussed with the class prior to being implemented.
- On occasion guest speakers may attend our class. Students should refrain from contacting these guests after the class, unless invited to do so.
- Turnitin.com is a plagiarism prevention and detection service to which Ryerson subscribes. Students who do not want their work submitted to this service must, by the end of the second week, consult with the instructor to make alternate arrangements.
- The unauthorized use of intellectual property of others, including your professors', for distribution, sale, or profit is expressly prohibited, in accordance with Policy 60 (Sections 2.8, 2.10). Intellectual property in this context includes, but is not limited to: slides, lecture notes, presentation materials used in and out of class, lab manuals, course packs, and exams.
- **Show respect for your fellow students.**
 - Arrive on time (before 10 minutes after the hour). Be ready to start.
 - Do not indulge in side conversations in class. Disruptive students will be asked to leave. We reserve the right to adjust a student's overall mark if he/she interferes with their colleagues' learning.
 - NO eating in class. Coffee or water are fine.

Computers and other electronic devices are allowed in class to take notes, mark up lecture slides and do quick internet searches of relevant materials. But students on Facebook or Youtube or watching the hockey game or texting distract not only themselves but also their colleagues. Any student who gratuitously "multitasks" will not be allowed to use electronic devices in the classroom.

No electronic recording of any segment of lectures / sessions without the express prior agreement of the instructor.

This course is conducted in accordance with all relevant University academic policies and procedures and students are expected to familiarize themselves with them and adhere to them. Students should refer online (ryersoncreative.ca) to the 2016/17 Creative Industries Student Handbook for specific information with respect to the following policies:

- *Policy #60: Student Code of Academic Conduct*
- *Policy #61: Student Code of Non-Academic Conduct*
- *Policy #134: Undergraduate Academic Consideration and Appeals.*
- *Policy #157: Ryerson's E-mail Accounts for Official Communication*
- *Policy #159: Academic Accommodation of Students with Disabilities*

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