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This course challenges students to rethink common understandings of technology by focusing not on technological advances, but on the numerous instances where technologies fail. Drawing upon recent work in anthropology, history, feminist science studies, science fiction, and philosophy of technology, the course focuses on the often catastrophic instances when technologies stop working as they should, as well as those less immediately catastrophic instances where technology meant to make our lives better leads instead to unanticipated problems.

While asking students to see the failings of technology as a rich site of inquiry, the course builds on canonical concerns about technology and material culture to explore a set of emerging questions: How do we think about and explain technological failure? How do our social institutions endeavor to predict and prevent failures in complex technological systems? What happens in the slippages between our expectations of technologies and their eventual performance? What material and conceptual damage occurs when technologies fail? And what does our faith in technology – both to make our lives better, and as fixes for the complex problems faced by humanity - say about our trust in humans? Using specific cases of failure, the course invites students to explore the complex relationships between the actions of humans, the contexts of knowledge and the proper functioning of the machines and materials of the modern world.

This course involves a significant amount of reading that you must do to keep up with the class. In addition, participation counts for a large portion of your grade, and is based primarily on your ability to demonstrate that you have done the readings carefully and thoughtfully. (More below). You are encouraged to ask questions during class, to discuss issues with each other and to come to office hours. The class format varies between lectures, guided and group discussions, and multimedia presentations.

Required Texts:

More Work For Mother: The Ironies of Household Technology from the Open Hearth to the Microwave

by Ruth Schwartz-Cowan, Basic Books, 1985.

Against Purity: Living Ethically in Compromised Times

by Alexis Shotwell, University of Minnesota Press, 2016.

Both required texts are available at the York University Bookstore.

Course Evaluation:

- Article Analysis: three at 10% each – 30%
- Participation: 20% (11% attendance, 9% participation)
- Short Essay: 30%
- Exam: 20%

Article Analysis (3 at 10% each – 30%):

In the first week of class, (Sept 7) students will choose three (3) articles from a selection of the course readings, to submit an in-depth analysis paper. This analysis is due ***the Monday evening (by midnight) before*** the article is assigned reading in class, and will be posted on Moodle, for everyone to read on the Monday of the week of class. Each of these analyses will be approximately 3 pages long and will cover the following:

1. 1-2 paragraph summary of the article (~250 words, one page)

- a. What is the thesis of the article – ie. What is the *answer* to the question this article is proposing?
- b. How is the argument supported? What evidence is used?
- c. What is the main example used in the article?
- d. What is the author attempting to get across?

2. 1-2 paragraph critique of the article (~250 words, one page)

(note: the critique should focus on the *content* of the article, rather than the *style* in which it is written. Some academic writing is extremely challenging. While I have made the attempt to choose the most accessible articles, there will still be moments where you have to go back, read a second time, turn off the music in the background, read aloud, etc. It is a major part of the process of academic reading to struggle with the language, as the language sometimes has to be complex to get across complex ideas.)

- a. How convincing did you find the argument?
 - i. If you found it convincing, why?
 - ii. If not, why not?
- b. Were there any holes in the argument? Did the author intentionally neglect or romanticize certain aspects of technology to the detriment of others?
- c. Where does this article fit historiographically? How has technology/attitudes toward technology changed since the writing of this article?

3. **A selection of key quotes to back up both your summary and critique (1 page):**
 - a. Identify approximately **one page** of key quotations from the article.
 - b. The quotations should be listed as informal footnotes to the analysis, numbered within the text, and including both the quote and the page number where the quote is found. *This means that I do not want quotations in the main body of the text.* This is to encourage you to write in your own words rather than to rely on others to make the point for you.

While I have given guidelines as to length, my interest is in a cogent and clear analysis, not counting words. You will not be penalized for going over or under, *within reason*.

Participation (20% - 9% Participation, 11% Attendance):

Your participation marks are heavily tied to your article analysis.

In the three weeks that you have chosen for your article analyses, your participation in class discussion will be graded. **This is to give you the best possible chance to get full marks for your participation.** As you have already completed your article analysis, I expect a full and lively participation in the class discussion, posing insightful and challenging questions with respect to the topic of the week, and connecting your article analysis to the other readings. This ensures that a few of you each week will lead the class discussion and enrich the rest of our knowledge. Each of these classes will contribute 3% to your final grade.

The remaining 11% of your participation will be from attendance, which will be taken every week (1% per class).

Note: Due to the realities of post-secondary education today, if your attendance is not perfect, but I know you are a consistent contributor in class, there is still the possibility for full attendance marks, at my discretion. Please communicate any issues or conflicts you may have early in the semester for the best chance of accommodation.

Short Essay (30%):

A 6-10 page narrative essay (1500-2500 words) on the topic of your choosing will be due on the second last day of class (November 23). The essay will be a case study based on one technological artifact of your choosing which has been a technological failure, *as you define failure*. This means that you are able to choose a technology that has been a success by certain metrics (economic, for example) but has caused failure in other arenas (social or environmental, for example). First, the essay should have a “thick description” of the artifact, paying close attention to the artifact’s physical presence in the world, the materials/materiality of the artifact, the labour and environmental effects embedded in the artifact, and the meaning of the artifact to you, if applicable. Second, the essay should focus on how that artifact has

failed to deliver its promised innovation, caused unanticipated problems, or failed spectacularly.

As this is a narrative essay, I am less focused on a “formal voice” and more focused on your ability to tell a story about the artifact chosen. This essay will be discussed in more depth in week 7 when the essay is assigned and the essay topics are chosen.

Final Exam (20%)

The final exam will take place on the final day of class (November 30) and will be a combination of short answer questions and one essay question. All course readings, lectures, in-class discussions and videos should be considered examinable and you are expected to have read all the required material and attended class every week.

Late Assignments: There are no extensions on assignments, except for illness or compassionate reasons. Late assignments will suffer a penalty of 3% per day.

A Note on Academic Integrity:

All cases of academic misconduct will be prosecuted. York University takes an extremely serious view of Academic Dishonesty, which includes activities such as cheating on examinations, plagiarism, unauthorized collaboration, misrepresentation, and submitting the same material in two different courses without written permission. Students are expected to be familiar with York's Senate Policy on Academic Honesty and should be aware that the consequences of misconduct are severe, and may include expulsion. If an instructor suspects that misconduct has occurred, that instructor has the right to examine students orally on the content or any other facet of submitted work. To ensure the academic integrity of the course, all students are required to achieve a perfect score on the Academic Integrity Tutorial (http://www.yorku.ca/tutorial/academic_integrity/) before any of their written work will be graded. If you have questions about plagiarism or would like to learn strategies to avoid it, you can visit Scott Library or the Centre for Academic Writing (CAW), or visit the University's Academic Integrity site at <http://www.yorku.ca/academicintegrity> for more information.

Please note that this syllabus is a living document, and is subject to change.

Week 1 (September 7): Course Overview:

Introduction

Discussion of the Assignments

Discussion of Evaluation

Discussion of Class Culture

Choosing analysis articles

Week 2 (September 14): What is Technology? What is Failure?

Marx, L. (2010). "Technology: The Emergence of a Hazardous Concept," *Technology and Culture* 51(3), p. 561-577.

Bruno Latour as Johnson, J. (1988). "Mixing Humans and Nonhumans Together: The Sociology of a Door-Closer." *Social Problems*, 35(3), 298–310.

Halberstam, J. (2011). "Introduction: Low Theory" in *The Queer Art of Failure*, Duke University Press, p. 1-26.

Sandage, S. (2005). "Prologue: Lives of Quiet Desperation," in *Born Losers: A History of Failure in America*, Cambridge: Harvard University Press, p. 1-21.

Week 3 (September 21): Large Technological Systems Failures (Part 1)

Collins, Harry and Trevor Pinch. (2002). "The Naked Launch: assigning blame for the Challenger explosion," in *The Golem at Large: What You Should Know About Technology*. Cambridge: Cambridge University Press, pp. 30-57.

Perrow, Charles. (1981). "Normal Accident at Three Mile Island." *Society*, Vol. 18(5). 17-26.

Lindee, S. (2016) Survivors and scientists: Hiroshima, Fukushima, and the Radiation Effects Research Foundation, 1975–2014. *Social Studies of Science* 2016, Vol. 46(2) 184–209.

Week 4 (September 28): Large Technological Systems Failures (Part 2)

Bennett, J. (2010). "The Agency of Assemblages" in *Vibrant Matter: A Political Ecology of Things*. Duke University Press: Durham, NC. p. 20-38.

Fortun, K. (2000). "Remembering Bhopal, Refiguring Liability" *International Journal of Postcolonial Studies* 2:2, 187-198.

Petryna, A. (2004). "Biological citizenship: The science and politics of Chernobyl-exposed populations." *Osiris* 19, 250–265.

DeLillo, D. (1985). "Airborne Toxic Event." in *White Noise* New York: Viking. P. 109-163.

Week 5 (October 5): Domestic Failures (Part 1)

Cowan, R. S. (1985). "An Introduction: Housework and its Tools." In *More Work For Mother: The Ironies of Household Technology from the Open Hearth to the Microwave* New York: Basic Books.
p. 3-15.

Cowan, R. S. (1985). "20th Century Changes in Household Technology – The Shift from production to Consumption". In *More Work For Mother: The Ironies of Household Technology from the Open Hearth to the Microwave* New York: Basic Books. P. 69-78

Cowan, R. S. (1985). "20th Century Changes in Household Technology - Remainder." In *More Work For Mother: The Ironies of Household Technology from the Open Hearth to the Microwave* New York: Basic Books. P. 79-99.

Week 6 (October 12): Domestic Failures (Part 2)

Cowan, R. S. (1985): "Household Technology and Household Work between 1900 & 1940 – The Golden Years". In *More Work For Mother: The Ironies of Household Technology from the Open Hearth to the Microwave* New York: Basic Books. P. 151-171

Cowan, R. S. (1985): "Household Technology and Household Work between 1900 & 1940 – Between the World Wars." In *More Work For Mother: The Ironies of Household Technology from the Open Hearth to the Microwave* New York: Basic Books. P. 172-191.

Cowan, R. S. (1985): "The Postwar Years & Postscript". In *More Work For Mother: The Ironies of Household Technology from the Open Hearth to the Microwave* Basic Books, 1985. P. 192-219.

Week 7 (October 19): Utopian Promises and... (on plastic, part 1)

Narrative Essay Assignment Handed Out

Meikle, J. L. (1997). "Material Doubts: The Consequences of Plastic." *Environmental History*, Volume 2(3). 278-300.

Miodownik, M. (2013). "Imaginative." In *Stuff Matters: Exploring the Marvelous Materials that shape our Man-Made World*. Mariner Books, Houghton Mifflin Harcourt: Boston/New York. P. 111-138.

Hawkins, G. (2010). "Plastic Materialities." In *Political Matter: Technoscience, Democracy, and Public Life*. Braun, B. & Whatmore, S. J. (eds.) University of Minnesota Press: Minneapolis/London. P. 119-138.

Week 8 (October 26): NO CLASS, FALL READING DAYS

Week 9 (November 2): Dystopian Realities... (on plastic, part 2)

Bond, D. (2013). "Governing Disaster: The Political Life of the Environment during the BP Oil Spill." *Cultural Anthropology* 28(4): 694–715.

Robertson, K. (2016). [Plastiglomerate](http://www.e-flux.com/journal/78/82878/plastiglomerate/). *e-flux*, 78. Found at: <http://www.e-flux.com/journal/78/82878/plastiglomerate/>

Hawkins, G., Potter, E. & Race, K. (2015). "Introduction" In *Plastic Water: The Social and Material Life of Bottled Water*. MIT Press: Massachusetts. p. xi-xxiv.

Hawkins, G., Potter, E. & Race, K. (2015). "Packaging Water." In *Plastic Water: The Social and Material Life of Bottled Water*. MIT Press: Massachusetts. p. 4-25.

Week 10 (November 9): The Failures of the Technological Fix

Merton, R. K. (1936). The Unanticipated Consequences of Purposive Social Action. *American Sociological Review*, volume 1(6). 894-904.

MacBride, S. (2012). "Introduction." In *Recycling Reconsidered: The Present Failure and Future Promise of Environmental Action in the United States*. Massachusetts: The MIT Press. P. 1-22.

Sarewitz, D. & Nelson, R. (2008). Three Rules for Technological Fixes. *Nature*, 456, 871-872. Found at: <https://www.nature.com/nature/journal/v456/n7224/full/456871a.html>

Diamond, J. (2005). "Why do some societies make disastrous decisions?" in *Collapse: how societies choose to fail or succeed*, New York: Viking. p. 419-440.

Week 11 (November 16): Futures Otherwise (part 1)

Shotwell, A. (2016). "Complexity and Complicity: An Introduction to Constitutive Impurity." In *Against Purity: Living Ethically in Compromised Times*. Minneapolis/London: University of Minnesota Press. P. 1-21.

Shotwell, A. (2016). "Remembering for the Future, Reckoning with an Unjust Past." In *Against Purity: Living Ethically in Compromised Times*. Minneapolis/London: University of Minnesota Press. P. 23-54.

Shotwell, A. (2016). "Shimmering Presences: Frog, Toad and Toxic Interdependencies." In *Against Purity: Living Ethically in Compromised Times*. Minneapolis/London: University of Minnesota Press. 77-106.

Week 12 (November 23): Futures Otherwise (part 2)

Narrative Essay Due

Shotwell, A. (2016). "Worlds to Come: Imagining Speculative Disability Futures." In *Against Purity: Living Ethically in Compromised Times*. Minneapolis/London: University of Minnesota Press. P. 165-194.

Shotwell, A. (2016). "Conclusion: The point, however, is to change it." In *Against Purity: Living Ethically in Compromised Times*. Minneapolis/London: University of Minnesota Press. P. 195-204.

Week 13 (November 30): IN CLASS EXAM