

Science, Technology and Society STAS 401.04 L01
Special Topics in Science, Technology and Society
Technology and Development
Fall 2011
M 13:00-15:50

Ethics Approval Pending

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Course Description

This course will focus on technology questions and issues in an international development context. The key questions to be addressed include the following: What are the different ways of thinking about technology? What is appropriate technology? Who developed the technology/how was the technology developed? What is the intended purpose of a given technology? Who is it for and who has access? How has it been/is it introduced? promoted? What are its impacts? Its side-effects? What are its unintended consequences? What values are embedded? What/whose knowledges are implicated? What are the indicators for its “success”, who makes these assessments and how? In considering these questions, students should be able to think critically about a given technology and to consider its social and political contexts for development.

Objectives of the Course

At the end of this course, students should be able to

1. consider technologies in their broader social contexts, with reference to the key questions of interest in this course.
2. critically analyze the appropriateness of given technologies for development contexts.
3. further develop research and writing skills.

Internet and electronic communication device information

Laptops may be used in-class for class-related purposes. Cell-phones should be turned off during the class period,

Textbooks and Readings:

No textbook is required; selected readings will be available on Blackboard.

Assignments and Evaluation

1. **Group Projects.** Students will work in groups of two and will choose a technology to examine in any of the four development arenas covered in the course. Students will be responsible for researching this technology in terms of its historical context and the key questions posed for this course (see course description). The group will write a brief report of up to 12 pages (double-spaced) and do an oral presentation in class. All reports will be due on the same designated date beforehand. (25% for written report, 10 % for oral presentation)
2. **Research Paper.** Students will select a topic of their choice, submit a brief (up to 2 pp. including initial reference list) on the proposed paper topic for approval, and complete a full research paper of no more than 12 pages (double sp., 12 size font) on the designated date. The research must include information/data from two interviews – either from a developer, a user, a policy maker, or other relevant stakeholder. (5 % for Paper Brief; 35% for paper)
3. **Class Participation.** Students will lead one class discussion (8%), will submit a one-page analytical response to four of the reading sets (8%) will also be assessed on on-going participation in weekly class discussions (9 %).

It is the student's responsibility to keep a copy of each submitted assignment.

Note: Please hand in your essays directly to your tutor or instructor if possible. If it is not possible to do so, a daytime drop box is available in SS320; a date stamp is provided for your use. A night drop box is also available for after-hours submission. Assignments will be removed the following morning, stamped with the previous day's date, and placed in the instructor's mailbox.

Registrar-scheduled Final Examination: None

Policy for Late Assignments

Assignments submitted after the deadline may be penalized with the loss of a grade (e.g.: A- to B+) for each day late.

Freedom of Information and Protection of Privacy Act

This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIP). As one consequence, **students should identify themselves on all written work by placing their name on the front page and their ID number. Also**

you will be required to provide a piece of picture identification in order to pick up an assignment or look at a final exam from SS320 after classes have ended.

For more information see also <http://www.ucalgary.ca/secretariat/privacy>.

Writing Skills Statement

Department policy directs that all written assignments (including, although to a lesser extent, written exam responses) will be assessed at least partly on writing skills. For details see <http://www.comcul.ucalgary.ca/needtoknow>. Writing skills include not only surface correctness (grammar, punctuation, sentence structure, etc) but also general clarity and organization. Research papers must be properly documented.

If you need help with your writing, you may use the Writing Centre. Visit the website for more details: www.efwr.ucalgary.ca

Grading System

The following grading system is used in the Department of Communication and Culture:

(Revised, effective September 2008)

	Grading Scale
A+	96-100
A	90-95.99
A -	85-89.99
B+	80-84.99
B	75-79.99
B-	70-74.99
C+	65-69.99
C	60-64.99
C-	55-59.99
D+	53-54.99
D	50-52.99
F	0-49

Where a grade on a particular assignment is expressed as a letter grade, it will normally be converted to a number using the midpoint of the scale. That is, A- would be converted to 87.5 for calculation purposes. F will be converted to zero.

Plagiarism

Using any source whatsoever without clearly documenting it is a serious academic offense. Consequences include failure on the assignment, failure in the course and possibly suspension or expulsion from the university.

You must document not only direct quotations but also paraphrases and ideas where they appear in your text. A reference list at the end is insufficient by itself. Readers must be able to tell exactly where your words and ideas end and other people's words and ideas begin. This includes assignments submitted in non-traditional formats such as Web pages or visual media, and material taken from such sources.

Please consult your instructor or the Writing Centre (MacEwan Student Centre 4th floor, efwr.ucalgary.ca) if you have any questions regarding how to document sources.

Academic Misconduct

For information on academic misconduct and the consequences thereof please see the current University of Calgary Calendar at the following link;
<http://www.ucalgary.ca/pubs/calendar/current/k.html>

Students with Disabilities

If you are a student with a disability who may require academic accommodation, it is your responsibility to register with the Disability Resource Centre (220-8237) and discuss your needs with your instructor no later than fourteen (14) days after the start of the course.

Students' Union

For details about the current Students' Union contacts for the Faculty of Arts see
<http://www.su.ucalgary.ca/governance/elections/home.html>

Student Ombudsman

For details on the Student Ombudsman's Office see
<http://www.su.ucalgary.ca/services/student-services/student-rights.html>

Emergency Evacuation and Assembly points

For information on the emergency evacuation procedures and the assembly points see
<http://www.ucalgary.ca/emergencyplan/assemblypoints>

"SAFEWALK" Program -- 220-5333

Campus Security will escort individuals day or night -- call 220-5333 for assistance. Use any campus phone, emergency phone or the yellow phone located at most parking lot booths.

Ethics

Whenever you perform research with human participants (i.e. surveys, interviews, observation) as part of your university studies, you are responsible for following university research ethics guidelines. Your instructor must review and approve of your research plans and supervise your research. For more information about your research ethics responsibilities, see

The Department of Communication and Culture Research Ethics site:

<http://www.comcul.ucalgary.ca/ethics>

or the University of Calgary Research Ethics site:

<http://www.ucalgary.ca/research/cfreb>

Schedule of Lectures and Readings

- | | |
|-------------|---|
| Wk 1/Sep 12 | <p>What is technology? What is development?
 Technology and the Millenium development goals
 Nye, Can we define technology?
 Juma, Development as learning</p> <p>Discussion: <i>Technology</i> and <i>development</i> concepts;
 Soft and hard technologies; technologies as culture</p> |
| Wk 2/Sep 19 | <p>What are the different frameworks for thinking about technology for development?
 --The rights approach
 --The capabilities approach
 --The security approach
 -- The innovation approach
 --The market approach</p> <p>Easterley, The ideology of development.</p> <p>WHO, 2003; The right to water; CH 1: Water as a human right; <i>Health and Human rights Publication series no.3.</i>
 http://www.who.int/eth/en/</p> <p>Microcredit as soft technology and use of the capabilities approach:
 http://library.thinkquest.org/05aug/00282/econ_credit.htm</p> <p>Discussion: What are (current) examples for each of these approaches?</p> |
| Wk 3/Sep 26 | <p>What is “appropriate technology”? What makes technology (in)appropriate?</p> <p>Why is technology a wicked problem? And why is technology</p> |

in development contexts even more “wicked”?

T. Ritchey, Wicked problems and social messes.

E. Schumacher, Small is beautiful (ch. 1-2)

Akubue, A. (2000), Appropriate technology for socio-economic development in third world countries. Journal of technology studies , 26:1

<http://scholar.lib.vt.edu/ejournals/JOTS/Winter-Spring-2000/akabue.html>

Wk 4/Oct 3

What are technological and social determinism? How does technology shape society? How can society in turn shape technology? What are some unintended consequences of technology?

Feenberg, ch. 1, The Parliament of Things

Hesketh, T. and ZW Xing (2011) The consequences of son preference and sex-selective abortion in China and other Asian countries.

Tenner, When things bite back: technology and the revenge of unintended consequences (ch. 2-3)

Discussion: What are some examples of technology’s unintended consequences?

Wk 5/Oct. 10

NO CLASS (Thanksgiving)

Wk 6/Oct. 17

GROUP REPORTS DUE.

What do technology knowledge ownership and technological expertise mean and what issues are implicated?

Case: Biopiracy and indigenous knowledge

Marden, The Neem tree patent: international conflict over the commodification of life.

Discussion: How should innovation initiatives (which include protection of intellectual property) be balanced against protection of and rights to indigenous/traditional knowledge?

Application areas: Security and information technologies

Wk 7/Oct 24

Field Trip

- Wk 8/Oct 31 **Assessing technologies for development.**
 What are the implications of taking a life-cycle approach to technology design and implementation?
- Application area: Energy and transport technologies
- Discussion: from design to disposal (and that pesky problem of Greenhouse gas emissions)
- Wk 9/Nov. 7 **PAPER BRIEF DUE.**
 What does *sustainable development* mean for technology design and assessment?
 Application area: Environment
- Williams & Willington, The diverse and contested meanings of sustainable development
 Special issue of the journal *Nature*- Supplement, June 2011
 The case of biofuels and renewable energy
- Discussion: Can environment and development be reconciled?
 In what ways is this reconciliation reflected in technology design and applications and in the ways technologies are assessed?
- Wk 10/Nov 14 What are the “innovative” ways of communicating technology in development contexts? What successes and pitfalls have been encountered? And what social and ethical issues are evident?
- Application area: Health and Food
 Turner, Medical tourism initiatives should exclude commercial organ transplantation.
- The Indian government’s promotion of medical tourism: see *Incredible India* website.
<http://www.incredibleindia.org/microsite/medical/>
- The case of safe sex:
<http://edition.cnn.com/2008/LIVING/personal/10/31/mf.safe.sex/index.html>
 The case of medical tourism, developing countries, and organ transplants
 Discussion: Come with other examples
- Wk 11/Nov 21 Field Trip
- Wk 12/Nov 28 **RESEARCH PAPERS DUE. PRESENTATIONS**

Wk 13/Dec 5 PRESENTATIONS

Some relevant journals:

- Journal of technology studies
- International journal of technology and globalization;
- Int'l journal of biotechnology
- Int'l journal of technology transfer and commercialization
- Int'l journal technology assessment in health care
- Int'l journal of tech management and sustainable development
- Int'l journal of global environmental issues
- Int'l journal of technology, knowledge and society
- Technology in society
- Int'l journal of technology management

READINGS:

Akubue, A. (2000), Appropriate technology for socio-economic development in third world countries. *Journal of technology studies* , 26:1 .

Easterley, W. (2007, The ideology of development. *Foreign policy*, July-August.

Feenberg, A. (1991), *Critical theory of technology*. Oxford: Oxford University Press.

Hesketh, T. and ZW Xing (2011) The consequences of son preference and sex-selective abortion in China and other Asian countries. *CMAJ*, Mar. 14.

Juma, C. (2005), *Innovation: applying knowledge in development*. Millenium Project. London: Earthscan

Marden, E. (1999), The Neem tree patent: international conflict over the commodification of life. *Int'l and Comparative Law Review*. 279, 22 BC.

Nature Supplement (2011) — 474:7352, . Special supplement on Biofuels, developing countries, sustainable development.

Postman, N. (1993) *Technopoly: the surrender of culture to technology*. New York: Vintage.

Schumacher, E.F. (1973) *Small is beautiful: a study of economics as if people mattered*. London: Blond and Briggs.

Tenner, E. (1997) *When things bite back: technology and the revenge of unintended consequences*. New York: Vintage

Turner, L. (2008), Medical tourism initiatives should exclude commercial organ transplantation. *Journ Royal Society of Medicine*, 101:391-394

Williams, CC & AC (2004), Willington, The diverse and contested meanings of sustainable development. *The geographical journal*. 170:2, 99-104.