GEORGIA INSTITUTE OF TECHNOLOGY

Global Development Capstone
INTA/ME 4744
Spring 2018
Wednesdays 3pm-5.45pm
Design Bloc, Library

INSTRUCTOR

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ABOUT THE COURSE

Students will work in teams to address multidisciplinary problems that fall within the scope of UN's Sustainable Development Goals (SDGs). These might involve novel approaches towards sustainability, globalization, food security, infrastructure, capacity building, health, water, sanitation, hygiene, ecosystem resilience, services, capacity building, and urbanization. Students work in teams to develop solutions in response to problems identified in sustainable global development policy. All solutions must be suitable, sustainable, and potentially scale-able. This experience will allow the students to experience engagement in context.

We will study in depth cases that have examined particular domains of global development, trying to analyze how they evolved, paying special attention to their successes *and failures*. Students will leave the course with a sensitivity to understanding the needs of underserved and under-represented individuals and communities in contexts different from their own, and an enhanced ability to do something with it.

Prerequisites:
INTA 2050 – Introduction to Global Development

LEARNING OUTCOMES

Science, Technology and International Affairs: Students will demonstrate the ability to describe the causal and determinant relationships between science and technology and international affairs across different topic areas.

RULES OF THE GAME

Grading policies are non-negotiable. To get an A, students must demonstrate *excellent* understanding of subject material and actively contribute to a stimulating classroom environment. This means that

they must show up to class, participate in class discussions, not give in to phone/laptop distractions, think critically in their assignments, and produce high quality work. Students should expect a B if they complete all requirements for assignments reasonably well, and show some aptitude (but not mastery) of the material. They can expect a C if they fail to complete requirements for assignments, *e.g.*, if they 'forget' to submit their final project report. Grades will be computed based on the following breakdown:

10% — Weekly Reflections
10% — Show & Tell
10% — Service
50% — Final Project
20% — Class Participation

Weekly Reflections (10%) will draw on readings—those in the syllabus or those outside. Weekly reflections (approx. 300 words) on two or more readings of choice are required. In particular, every reflection must connect with an *outside* source as well — a personal experience, TED talk, or news article. These will be due by **12pm Wednesdays** on Slack. Each reflection will receive 1 point if it is well-written (well thought out, composed, presented, and cited). Ten of these will count towards 10% of the course grade.

'Show & Tell' (10%) will involve each student presenting—for a maximum of 15 minutes plus Q&A—on a project /case study that they found interesting. The presentation will be graded out of 20 points —interactivity (5), creativity (5), choice of content (5), and Q&A (5).

Service (10%) will involve 3 hours of volunteering and/or community service at an organization of choice. Students will decide on an area/activity of interest and need to put in 3 hours to complete said activity. It could be planting trees, volunteering at a kitchen or hospital, or participating in an activity on campus, but it should involve engaging with a group of individuals that force students to step out of their comfort zones, their 'single stories'. Students must also provide evidence of having done this—an email from an authority would suffice, for instance. They will be required to write a 500 word reflection on their experience, including photos as well.

The Final Project (50%) is designed to help students get hands-on experience with doing needs assessment and design in the realm of (local and) global development. Students will work in teams of 2-3 and presumably with those who have common interests. Interdisciplinarity is encouraged. Teams are also required to submit their project ideas to the Ideas Track for the Ideas2Serve competition organized by Scheller every Spring. The project deliverables will be as follows. Rubrics will be shared closer to the date.

: Checkpoint 1: The Three-Page Executive Summary (10%)

Each team will decide on a 'problem' they will address with their project, a 'solution' they will approach it with, and a justification for why this is a good fit. The problem space should align with the UN SDGs. This three page executive summary should follow instructions given by Ideas2Serve and show sensitivity towards the ideas covered in the course thus far. Students will be shown sample summaries in class. Feedback will be given to students before the March 27 submission deadline for I2S. For full credit, they will need to factor in feedback and submit these summaries forth to I2S. Grades will be assigned based on the guidelines specified on the I2S website.

: Checkpoint 2: Class Presentations (10%)
Students will do a 10 minute class presentation (plus Q&A) on their project. They should submit a PDF of their presentation on Slack. A rubric will be shared a few weeks before the due date.

: Checkpoint 3: Poster Presentations (10%)
Students will put together a poster for their group project and present it at the I2S final showcase. They should submit a PDF of their poster on Slack. A rubric (and examples) will be shared a few weeks before the due date.

: Checkpoint 4: Final Reports (20%)
This final paper asks students (in teams) to summarize their projects and lessons learned through iteration. Every student will also individually reflect on his/her progress in the class and the leaps that he/she made (or not). In addition, there will be a survey to assess whether all team members participated equally and fairly *if students voice the need for this*.

Class Participation (20%) will be assessed based on *attendance*, *initiative*, *integrity*, and *in-class exercises*. These four components are explained below.

: Attendance (0%) is important. Students should come to every class (when we have class), on time, and stay for the entire duration of the class. If for any reason students must miss class or a portion of it (15 minutes or more), they should notify the instructor at least 24 hours before class.

: Taking initiative (5%) is important. This means going out of one's way to be a responsible and proactive member of one's community. It also means speaking up in class and participating in class discussions. Students can get up to 3 initiative points in each class. Twenty points or more will get them the full 5%. These points will be granted on discretionary basis by the teaching team.

: Integrity (5%) is a fuzzier concept than initiative, but translates to professionalism. At a base level, it means contributing one's fair share of work in a team-based exercise. However, it also means paying attention during class, respecting timelines, not engaging in diversions through various technological devices, among other things. We would like all students to come to class with a professional attitude, ready and willing to learn. Integrity points, therefore, work in the opposite direction. Students will be

granted 3 integrity points for each class, but if their conduct is found obviously lacking in ways mentioned above, they could lose these. Also worth 5%. Also discretionary.

: In-Class Exercises (10%) will be organized periodically and students are expected to participate fully. These will include informal exercises, discussions, peer workshops, group time for assignments, among others. Points for these exercises will be given based on the level of activity and engagement of each student (or group, depending on the exercise). In addition, for some exercises, groups will likely need to schedule meetings outside of class hours. Students should keep this in mind for group formation. These exercises will count for 10% of the grade.

HONOR CODE

By participating in this class, you agree to adhere to the Georgia Tech Honor Code. For additional information see: http://www.honor.gatech.edu/.

RECOMMENDED READINGS

Schumacher, E. F. (2011). Small is beautiful: A study of economics as if people mattered. Random House.
Bornstein, D., 2007. How to change the world: Social entrepreneurs and the power of new ideas. Oxford University Press.
Prahalad, C. K. (2006). The Fortune at the Bottom of the Pyramid. Pearson Education India.

Development

- Harry S. Truman's Inaugural Speech, delivered January 20, 1949. http://www.presidency.ucsb.edu/ws/index.php?pid=13282 – axzz1vI9oQvaQ (Focus on the sentences following "Fourth, we must embark on a bold new program…")
- Friedman, T. (2005). Chapter 1. While I was Sleeping in *The world is flat: A brief history of the globalized world in the 21st century.* London: Allen Lane, 1-49.
- Thomas, A. (2000). Meanings and Views of Development In *T. Allen and A. Thomas (Eds) Poverty and Development into the 21st Century*, 23-51. Oxford University Press.
- Escobar, A. (2011). Chapter 1. Introduction: Development and the Anthropology of Modernity in *Encountering development: The making and unmaking of the Third World.* Princeton University Press.
- Sen, A. (2001). What is Development About? In *Meier, G. and J. Stiglitz (Eds) Frontiers of Development Economics: The Future in Perspective*, 506-513. Oxford University Press.
- Corbridge, S. (2007). The (im) possibility of development studies. *Economy and Society, 36(2),* 179-211.

- Ziai, A. (2013). The discourse of "development" and why the concept should be abandoned. *Development in Practice*, 23(1), 123-136.
- http://www.economist.com/news/international/21647307-2015-will-be-big-year-global-governance-perhaps-too-big-unsustainable-goals
- http://www.economist.com/news/leaders/21647286-proposed-sustainable-development-goals-would-be-worse-useless-169-commandments

Poverty

- Banerjee, A. & Duflo, E. (2011). Think again, again in *Poor economics: A radical rethinking of the way to fight global poverty.* PublicAffairs. Browse the book's website http://pooreconomics.com
- Gates, B. (2013). GDP is a terrible way to measure a country's economy and it hinders our ability to help the poor. In *Slate*: http://www.slate.com/articles/business/project_syndicate/2013/05/bill_gates_on_helping_the_poor_gdp_is_a_terrible_measurement.single.html
- Easterly, W. (2002) Aid for Investment in *The Elusive Quest for Growth: Economists' Adventures and Misadventures in the Tropics.*
- Prahalad, C. K. (2006). *The Fortune at the Bottom of the Pyramid.* Pearson Education India.
- Deepa, N., Patel, R., Schafft, K., Rademacher, A., & Koch-Schulte, S. (2000). *Voices of the poor: Can anyone hear us?* World Bank, Washington DC.
- McIntyre, L., & Munro, J. (2013). "Nobody helps us": insights from ultra-poor Bangladeshi women on being beyond reach. *Development in Practice, 23(2),* 157-168.

Technology

- Winner, L. (1980). Do artifacts have politics? *Daedalus*, 121-136.
- Bijker, W. E. (1997). Of bicycles, bakelites, and bulbs: Toward a theory of sociotechnical change. MIT press.
- Schumacher, E. F. (2011). Small is beautiful: A study of economics as if people mattered. Random House.
- Marx, L. (1997). Technology: The Emergence of a Hazardous Concept. Social Research, 965-988.
- Brewer, E., Demmer, M., Ho, M., Honicky, R. J., Pal, J., Plauche, M., & Surana, S. (2006). The challenges of technology research for developing regions. IEEE Pervasive Computing, 5(2), 15-23.
- "Can Technology End Poverty" in Boston Review, November-December 2010. http://www.bostonreview.net/BR35.6/ndf_technology.php
- Parayil, G. (1992). The Green Revolution in India: A Case Study of Technological Change. *Technology and Culture*, 737–756.
- Shiva, V. (1991). The violence of the green revolution. Third World Agriculture, Ecology and Politics. Londres & Nueva York: Zed Books Ltd, 20.

- Fisher, M. (2006). Income is development: Kickstart's pumps help Kenyan farmers transition to a cash economy. innovations, 1(1), 9-30.
- Arp, H.P. and Baumgärtel, K. (2005). Case Study: The Consequences of the Akosombo Dam. Swiss Federal Institute of Technology Zurich.

Designing for Development

- Smillie, I. (2000). Chapter 3: The Best of the West: Thinking Big. In *Mastering the Machine Revisited: Poverty, Aid and Technology*, 35-48. Verlag.
- Mitchell, T. (1991). America's Egypt: Discourse in the Development Industry. *Middle East Report, 169,* 18-36.
- Burrell, J., & Toyama, K. (2009). What constitutes good ICTD research?. *Information Technologies & International Development, 5(3),* pp-82.
- Ho, M. R., Smyth, T. N., Kam, M., & Dearden, A. (2009). Human-computer interaction for development: The past, present, and future. *Information Technologies & International Development, 5(4)*, pp-1.
- Toyama, K. (2015). *Geek heresy: Rescuing social change from the cult of technology.* PublicAffairs.
- Bilger, B. (2009). Hearth Surgery. The Quest for a Stove that Can Save the World. *The New Yorker*, December 21.

Access

- Smith, L. T. (1999). *Decolonizing methodologies: Research and indigenous peoples*. Zed books.
- Irani, L., Vertesi, J., Dourish, P., Philip, K., & Grinter, R. E. (2010, April). Postcolonial computing: a lens on design and development. In *Proceedings of the SIGCHI conference on human factors in computing systems* (pp. 1311-1320). ACM.
- Dourish, P., & Mainwaring, S. D. (2012). Ubicomp's colonial impulse. In *Proceedings of the 2012 ACM Conference on Ubiquitous Computing* (pp. 133-142). ACM.
- Burrell, J. (2010). Evaluating Shared Access: social equality and the circulation of mobile phones in rural Uganda. *Journal of Computer-Mediated Communication, 15(2)*, pp230-250.
- Heimerl, K., Hasan, S., Ali, K., Brewer, E., & Parikh, T. (2013, December). Local, sustainable, small-scale cellular networks. In *Proceedings of the Sixth International Conference on Information and Communication Technologies and Development:* Full Papers-Volume 1 (pp. 2-12). ACM.
- Sambasivan, N., Cutrell, E., Toyama, K., & Nardi, B. (2010). Intermediated technology use in developing communities. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 2583-2592). ACM.
- internet.org

Agriculture

- Jensen, R. (2007). The digital provide: Information (technology), market performance, and welfare in the South Indian fisheries sector. *The quarterly journal of economics*, 879-924.
- Srinivasan, J., & Burrell, J. (2013, December). Revisiting the fishers of Kerala, India. In *Proceedings of the Sixth International Conference on Information and Communication Technologies and Development:* Full Papers-Volume 1 (pp. 56-66). ACM.
- Hayes, G. (2014). Chapter 3: Knowing by Doing: Action Research as an Approach to HCI. *Ways of Knowing in HCI.* Springer, New York.
- Anokwa, Y., Smyth, T. N., Ramachandran, D., Sherwani, J., Schwartzman, Y., Luk, R., ... & DeRenzi, B. (2009). Stories from the field: Reflections on HCI4D experiences. *Information Technologies & International Development, 5(4),* pp-101.
- Patel, N., Chittamuru, D., Jain, A., Dave, P., & Parikh, T. S. (2010, April). Avaaj otalo: a field study of an interactive voice forum for small farmers in rural india. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 733-742). ACM.
- Gandhi, R., Veeraraghavan, R., Toyama, K., & Ramprasad, V. (2007, December). Digital green: Participatory video for agricultural extension. In *Information and Communication Technologies and Development, 2007*. ICTD 2007. International Conference on (pp. 1-10). IEEE.

Entertainment

- Bailur, S. (2007, May). The complexities of community participation in ICT for development projects: The case of "Our Voices.". In *Proceedings of 9th International Conference on Social Implications of Computers in Developing Countries.*
- Chirumamilla, P., & Pal, J. (2013, December). Play and power: a ludic design proposal for ICTD. In *Proceedings of the Sixth International Conference on Information and Communication Technologies and Development: Full Papers-Volume 1* (pp. 25-33). ACM.
- Arora, P. & Rangaswamy, N. (2013). Digital leisure for development: reframing new media practice in the global South. *Media, Culture & Society, 35(7)*, pp. 898-905.
- Kumar, N. (2014). Facebook for self-empowerment? A study of Facebook adoption in urban India. *New Media & Society.*
- Smyth, T. N., Kumar, S., Medhi, I., & Toyama, K. (2010, April). Where there's a will there's a way: mobile media sharing in urban india. In *Proceedings of the SIGCHI conference on Human Factors in computing systems* (pp. 753-762). ACM.
- Vashistha, A., Cutrell, E., Borriello, G., & Thies, W. (2015, April). Sangeet swara: A community-moderated voice forum in rural india. In *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems* (pp. 417-426).
- Liang, L. (2010). "Access Beyond Developmentalism: Technology and the Intellectual Life of the Poor." *Information Technology and International Development* Vol. 6.
- Kothari, B., Pandey, A. and Chudgar, A.R., 2004. Reading out of the "idiot box": Same-language subtitling on television in India. Information Technologies & International Development, 2(1), pp.pp-23.

Global Health

- Buskens, I. (2015). in Bidwell, N., & Winschiers-Theophilus, H. (Eds.). At the Intersection of Indigenous and Traditional Knowledge and Technology Design. *Informing Science.*
- Natarajan, M., & Parikh, T. (2013, December). Understanding barriers to information access and disclosure for HIV+ women. In *Proceedings of the Sixth International Conference on Information and Communication Technologies and Development: Full Papers-Volume 1* (pp. 143-152). ACM.
- Bardzell, S., & Bardzell, J. (2011, May). Towards a feminist HCI methodology: social science, feminism, and HCI. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 675-684). ACM.
- Haraway, D. (1988). Situated knowledges: The science question in feminism and the privilege of partial perspective. *Feminist studies, 14(3)*, 575-599.
- Sterling, S. R., Dodson, L., & Al-Rabaan, H. (2014). The fog phone: water, women, and HCID. *interactions*, 21(6), 42-45.
- 99 Dots <99dots.org>

Education

- Toombs, A., Gross, S., Bardzell, S., & Bardzell, J. (2016). From Empathy to Care: A Feminist Care Ethics Perspective on Long-Term Researcher–Participant Relations. *Interacting with Computers.*
- Warschauer, M., & Ames, M. (2010). Can One Laptop per Child save the world's poor? *Journal of international affairs*, 33-51.
- Noddings, N. (2013). An ethic of caring. *Ethical theory: An anthology*, 699-710.
- Cervantes, R., Warschauer, M., Nardi, B., & Sambasivan, N. (2011, May). Infrastructures for low-cost laptop use in Mexican schools. In *Proceedings of the SIGCHI conference on human factors in computing systems* (pp. 945-954). ACM.
- Kam, M., Kumar, A., Jain, S., Mathur, A., & Canny, J. (2009, April). Improving literacy in rural India: Cellphone games in an after-school program. In Information and Communication Technologies and Development (ICTD), 2009 International Conference on (pp. 139-149).
- Yang, Y., Hu, X., Qu, Q., Lai, F., Shi, Y., Boswell, M., & Rozelle, S. (2013). Roots of tomorrow's digital divide: Documenting computer use and internet access in china's elementary schools today. *China & World Economy, 21(3),* 61-79.
- Sorcar, P., Strauber, B., Loyalka, P., Kumar, N., & Goldman, S. (2017, May). Sidestepping the Elephant in the Classroom: Using Culture Appropriate Software to Teach Around Taboos. In *Proceedings of the SIGCHI conference on human factors in computing systems. ACM.*

Impact

- Dell, N., & Kumar, N. (2016, May). The Ins and Outs of HCI for Development. In *Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems* (pp. 2220-2232). ACM.
- Kumar, N., Perrier, T., Desmond, M., Israel-Ballard, K., Kumar, V., Mahapatra, S., ... & Anderson, R. (2015, May). Projecting health: Community-led video education for maternal health. In *Proceedings of the Seventh International Conference on Information and Communication Technologies and Development* (p. 17). ACM.
- Kumar, N., & Anderson, R. J. (2015, April). Mobile phones for maternal health in rural India. In *Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems* (pp. 427-436). ACM.
- Taylor, N., Cheverst, K., Wright, P., & Olivier, P. (2013, April). Leaving the wild: lessons from community technology handovers. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (pp. 1549-1558). ACM.
- Mudliar, P., Donner, J., & Thies, W. (2012). Emergent practices around CGNet Swara, voice forum for citizen journalism in rural India. In *Proceedings of the Fifth International Conference on Information and Communication Technologies and Development* (pp. 159-168). ACM.
- Marathe, M., O'Neill, J., Pain, P., & Thies, W. (2015). Revisiting CGNet Swara and its impact in rural India. In *Proceedings of the Seventh International Conference on Information and Communication Technologies and Development* (p. 21). ACM.

LATENESS

Students will have two late days throughout the semester to use for their individual assignments (that is, reflections, service assignment, and the individual reflection for their projects). These can only be used in 24-hour chunks. Assignments submitted more than ten minutes after they are due will not be assessed

COMMUNICATION

Whenever the need arises, students are encouraged to send direct messages on Slack. Email should be used only when absolutely essential. Students are also requested to give the instructor at least one full business day to respond. Group discussions should also take place on Slack, as needed.

ACADEMIC INTEGRITY AND HONOR CODE

While students are encouraged to work together and collaborate, they should clearly differentiate their work from that of others, including peers and bibliographical sources. Complete and accurate representation of all direct quotations and paraphrased material is required. Plagiarizing will be addressed in accordance with the Georgia Tech Honor Code (http://honor.gatech.edu/plugins/content/index.php?id=9).

ADAPTS

The instructor will work with ADAPTS so that all students have an equal opportunity for success. For information on ADAPTS, see http://www.adapts.gatech.edu/.

THINGS TO REMEMBER

1. If you are concerned about how you will be evaluated, ask *as early as possible*. This is your responsibility as a student to stay abreast of your progress in class. This applies in particular to class participation points and/or grade thresholds.
2. There may be minor changes to the syllabus and they will be announced in class as well as on Slack. Please make sure to update yourself or ask a friend.
3. In general, you are responsible for being up to date on all things posted on Slack. Please see how you can update your Slack preferences so that you are kept duly informed.

DUE DATES

Reflections are due every Wednesday from Week 2 to Week 11.
The service assignment is due Wednesday 12pm on **January 24th.**
The I2S Intent to Compete (form) is due **March 15th.**
I2S submission drafts are due **March 7th.**
I2S final submissions are due **March 27th.**
I2S finals are on **April 12th.**
Final project reports are due **April 30th.**