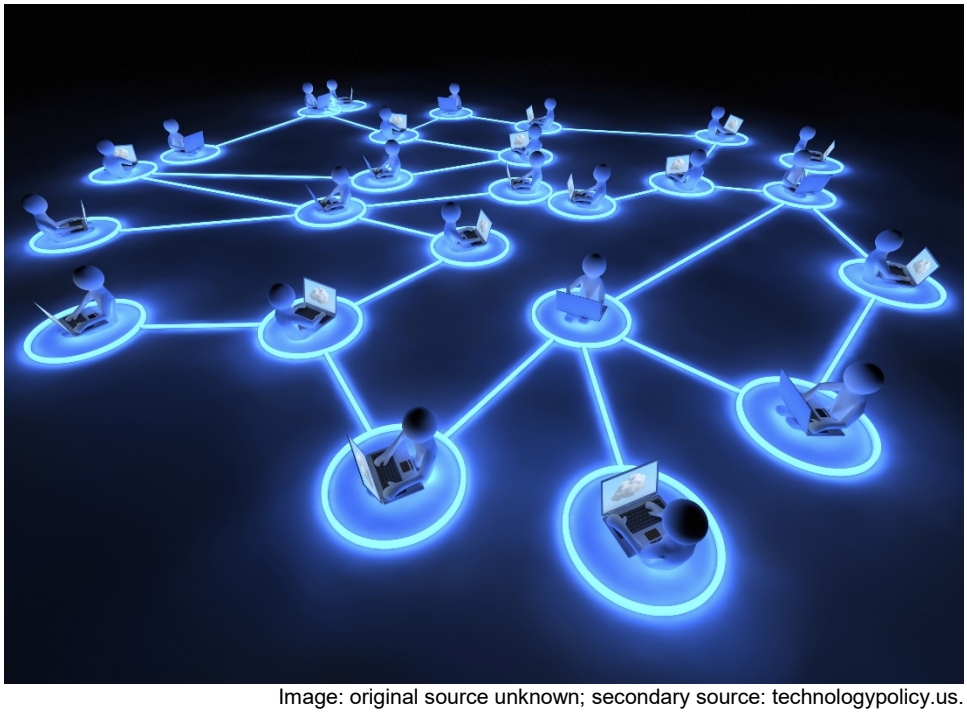
Global Innovation Challenge: 2020

communicating science across ages, cultures, and geographies



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"Field Guide"

END357/557/418/518

January 21-25, 2020

The Oxford Dictionary of the English Language chose "post-truth" as its word of the year for 2016. In a post-truth, post-fact world, views that appeal to emotions and personal beliefs are more influential than objective evidence-based facts.

What does this mean for public trust in the evidence produced by science, medicine, and public health?

– Dr. Margaret Chan, Director General of the World Health Organization, 2006-2017

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Background

In 1953, Francis Crick and James Watson, building on the work of Rosalind Franklin, described the double helical structure of a DNA molecule, a finding that gave rise to modern molecular biology and deeply influenced art and culture. In 1978, lead, a substance known to have adverse health effects since the second century BCE, was banned in the United States as an additive to household paint. In 2006, Al Gore, hoping to alert the public to the planetary emergency of global warming, released *An Inconvenient Truth*, a $50 million-grossing book and documentary.

These issues – genetics, chemical exposure, and climate change – affect human health in important ways, but they are complex to understand and communicate.

Since the monumental discovery of the double helix, public and private institutions have sought to advance and capitalize on our growing understanding of genomics. Now, an individual can obtain information about their ancestry, health, and traits by simply spitting in a tube and mailing it away. Yet, many health care providers lack resources to provide genetic-based health services and education to their patients, as approximately 50% of the public reports little or no understanding of the term “human genome.”

In parallel, there are 180,000 chemicals produced or imported into the U.S. each year. Only a handful of those have been studied, but there is increasing evidence that chemicals in daily-use products such as baby bottles, baby pajamas, and car seats may be harmful to children’s growth and development. The companies making, marketing, and selling products have much at stake, as does the public. Many individuals remain unsure: what information and whom do I trust?

In addition, from the 1820’s to the present, despite scientific evidence, the world continues to debate the impacts of climate change without taking action. In 2015, for the first time, all members of the United Nations convened at the Framework Convention on Climate Change to strengthen the global response. Yet, the influence of politics and an emphasis on economic factors have delayed progress, especially in the United States.

Advances in research around genomics, chemical exposures, and global climate change have far-reaching effects on the health and wellbeing of the planet and its people. Communicating this information in an effective and meaningful manner, however, remains a challenge. Cultural differences, political motivations, and new media platforms all contribute to the difficulty surrounding already complex issues of human health. The question remains: how can important research findings and health risks be better communicated so that people can make decisions and take action?

The Challenge

Communicating science to people across ages, cultures, and geographies.

Format

In this workshop, you will participate in team-building activities and work with international experts and UB faculty to develop social, technological, business, educational, and policy innovations. As you work, continue to ask and answer the following questions:

- What are some of the complex health issues of today?
- How is complex health information currently communicated?

- What differentiates effective communication from ineffective communication?
- How do we communicate complex and uncertain information in clear, accurate, sensitive, ethical, and helpful ways?
- How do we communicate content so that it is culturally relevant – messaging that communicates to followers of science and religion, to left-leaning and right-leaning political minds, to people across geographic and cultural borders?
- What tools can be most effective; what new tools can be developed?
- Whose responsibility is it for communicating vital information?

The Process

The Global Innovation Challenge (and its commensurate classes: END 357/557 and END 418/518) utilizes a unique learning format. The week begins with short presentations from guests, and a recording of the questions that come to mind. Collectively, we organize these questions into themes, and each participant selects a theme that captures her/his/their interest. This will form the basis of project teams.

Each team will determine a particular culture and setting, as well as select one focus area from each of the three menus below:

Health Topic	**Communication Type**	**Population/Audience**
genomics	a form of written communication	a particular age group
chemical exposure	a form of verbal communication	a particular gender
climatic events	a form of non-verbal comm.	another specified group

The chosen population must be non-Western, e.g., they may be from an Asian, African, or Latin American country; or a non-European immigrant living in the United States.

As the work progresses, each team will be encouraged to focus their proposed strategies toward a manageable scale – a project that the team can feasibly carry out over the next year. Teams will be coached on how to refine their ideas, and will get practice and feedback on how to "pitch" the proposed solution. The week culminates in juried presentations from the teams.

Judging Criteria

1. **How well did the team understand the science of the chosen topic, e.g., genomics, chemical exposure, or climate?**
2. **How well did the team understand the challenge of communicating information related to the chosen topic?**
3. **How well developed was the proposed communication strategy? How innovative is it? How likely is it to succeed?**
4. **To what extent did the team align the proposed solution with a specific culture, population, and setting?**
5. **How clear and impactful was the team's verbal presentation?**
6. **How clear and impactful was the team's visual presentation?**

Contributors

The Global Innovation Challenge is sponsored by the Community of Excellence in Global Health Equity, in partnership with the School of Architecture and Planning, Blackstone Launchpad, Business and Entrepreneur Partnerships, and International Education.

Professors Korydon Smith and Emmanuel Frimpong Boamah will serve as the instructors of record and lead facilitators, with Jessica Scates and Gauri Desai substantially contributing to the organization, facilitation, and assessment of work. Throughout the week, external partners and UB faculty and staff will serve as presenters, coaches, and judges.

The course will be integrated both "horizontally" (across disciplines) and "vertically" (across year levels). Nevertheless, graduate students are expected to take on team leadership roles, stewarding equal participation of team members and managing the progress of the team. Graduate students are expected to seek leadership guidance directly from the organizers.

Educational Goals

The Global Innovation Challenge has three major educational goals (and several embedded learning objectives).

Goal 1 is to explore the challenges of communicating complex health information to people across ages, cultures, and geographies. You will get snapshots of complex health issues, and we will help deepen your understanding of the social, technological, economic, environmental, educational, and institutional challenges to communicating these issues to people across ages, cultures, and geographies.

Goal 2 is to learn how to identify, test, and develop ideas as part of an interdisciplinary team. We will discuss disciplinary differences as well as differences in problem-solving personalities, gaining a deeper understanding of your own preferences and tendencies and how to more effectively work as part of a team. You will also gain experience in collective decision making that leads to a cohesive proposal.

Goal 3 is to practice and develop skills of effectively presenting complex challenges and solutions. You will receive coaching on how to effectively deliver a "pitch" to a panel of experts. This will include feedback on both verbal and visual techniques.

Ultimately, the organizers hope you find the week challenging yet inspirational and fun, with lots of learning in a short time.

Assignments and Grading

If you registered for the paid workshop, no grade will be assigned, but you will receive a certificate of participation. If enrolled in END 357/557 (three credits) or END 418/518 (one credit) you will be graded according to Appendix 1.

Attendance

Attendance is mandatory. Each day of the workshop is the equivalent of 2-3 weeks in a semester. If you are absent due to illness, family emergency, etc., please contact the organizers via e-mail or phone as soon as possible. If you are absent from all or part of a session, you must gather all information, handouts, and discussion notes from your colleagues. You will also be given a makeup assignment, equivalent to two weeks of work, which must be completed to pass the course.

Given the brevity of the course, if you are unable to attend multiple sessions, due to any circumstances, you must withdraw from this year's challenge and rejoin us next year. The instructors retain the right to drop any student from the course due to attendance.

Class Cancelation Policy

Class will be held unless the university is closed. In this case, the workshop schedule will be adjusted by one day, or according to the information delivered by the professors; as such, the juried presentation will move to the subsequent Saturday or a date determined by the professors. Depending on the circumstances of the cancellation, the professors may provide additional guidance via email. Participants are responsible for reading and responding to notifications.

Resources

A set of initial resources for the course has been assembled in UBBox. You are encouraged to add to these resources. Students with any documented needs or preferential requests are advised to speak with the professors as well as the appropriate campus agency, e.g., Office of Accessibility Resources (http://www.buffalo.edu/accessibility/), as soon as possible in order to provide appropriate accommodations or modifications to the learning and assessment techniques of the course.

Integrity

The Global Innovation Challenge provides a collaborative learning environment, including a large reliance on one another for idea generation and information sharing. Likewise, teams will utilize the ideas and feedback of other teams, invited guests, and other resources. It is important to keep track of the sources and evolution of the team's work, and, for the final "pitch," you are expected to cite all borrowed images and concepts. All other university integrity policies also apply: http://catalog.buffalo.edu/policies/course/integrity.html.

Equally important, while you may think of yourself only as a student, we believe you are here both to learn and to teach; you are capable of teaching—of teaching yourself and of teaching others. Reciprocally, we are here not only to teach but also to learn. Please aim for openness and humility in the personal, cultural, and scholarly expertise that your colleagues and invited guests bring. Some course content may be offensive, personal, and/or emotionally disturbing to some individuals, while the same content may seem innocuous or humorous to others. Please be sensitive to this. For the week to operate effectively, it is essential that each student, the instructor, and invited guests feel comfortable in discussing any issue that arises. Please listen intently to opinions divergent from your own; and contribute to the dialogue by exploring the views of others in a constructive manner. If you feel you are unable to participate in this way, please consider taking another course.

Lastly, strive toward clarity in speaking and listening, while you strive toward integrity—honesty with your instructors, honesty with your colleagues, and honesty with yourself. Please be generous in sharing your concerns, satisfactions, and recommendations as we move through the week and semester.

APPENDIX 1: GRADING
Please review the appropriate track below.

END 357/557 (three credits)
For END 357/557, the course includes two large phases: (1) the weeklong workshop and (2) assignments completed during the spring term. The schedule, assignments, and evaluation are as follows:

DUE DATE(S)	ACTIVITY/ASSIGNMENT	ASSESSMENT	VALUE
21-25 January	attendance and participation in weeklong workshop	based on attendance records and the observations of the teaching team	pass/fail
03 February	a list of key resources on the topic and proposed solution: 1 book, 1 book chapter, 1 journal article, 1 piece of media, and 1 piece of "gray" literature + a list of key resources on the cultural context: 1 book, 1 book chapter, 1 journal article, 1 piece of media, and 1 piece of "gray" literature	based on applicability of resources to chosen topic and quality of sources (0 or 1 for each source)	10 points
10 February	800-word (+/- 75 words) essay that serves as the script for the motion graphic, to include: (1) statement of the need, (2) description of the cultural context, (3) overview of key research/topic, (4) description of the goal and objectives, (5) detailed list of activities (steps toward the solution), (6) critique of 1-2 similar, past solutions, and (7) statement of the solution's strengths and limitations	based on logic and flow (5), integration of the seven elements (7), clarity (4), grammar and spelling (2), punctuation (2)	20 points
17 February	review and submission of exemplary motion graphics + review of motion graphic tools	based on submission of the template provided	5 points + 5 points
24 February	draft motion graphic with verbalized (revised) essay, animated content, and sound	based on intellectual and emotional impact (5), narrative flow and clarity (5), animation quality (3), sound quality (3), and inventiveness (4)	20 points
09 March	final motion graphic with verbalized final essay, animated content, and sound	based on intellectual and emotional impact (10), narrative flow and clarity (10), animation quality (6), sound quality (6), and inventiveness (8)	40 points
11 March	peer- and self-evaluation	based on depth of reflection (0 or 5)	bonus: 5 points
			100 points

You must pass the workshop in order to pass the course. To pass the workshop, you must arrive prepared and on time to each session, and work continuously and thoughtfully throughout the day. You are expected to engage in critical dialogue with experts and peers, proactively seek and respond to criticism, and meet incremental deadlines. For each session missed, your overall grade will be reduced by one full letter grade. In addition, for each criterion—participation, critical dialogue, etc.—or daily deliverable not met during the workshop, your grade will be reduced by one full letter grade. Late assignments will not be accepted and will receive no credit. All work, except the peer- and self-evaluation, is completed and submitted as a team. Absentee team members (people not "pulling their weight"), as determined by the peer-evaluations and consultations with the professors, may receive a pro-rated reduction of up to 50 points. Grades are as follows, with +/- used for borderline cases:

A = passing evaluation for the workshop + 90 or more points
B = passing evaluation for the workshop + 80 or more points
C = passing evaluation for the workshop + 70 or more points

D = passing evaluation for the workshop + 60 or more points
F = failure of workshop phase or less than 60 points

END 418/518 (one credit)

For END 418/518, the course only includes the weeklong workshop (January 21-25). To receive a grade of "A," you must arrive prepared and on time to each session, and work continuously and thoughtfully throughout the day. You are expected to engage in critical dialogue with experts and peers, proactively seek and respond to criticism, and meet incremental deadlines. For each session missed, your grade will be reduced by one full letter grade. In addition, for each criterion—participation, critical dialogue, etc.—or daily deliverable not met, your grade will be reduced by one full letter grade. If you are absent or late multiple times, or are unwilling to participate as a team member, it is recommended that you consider registering for a different course or a future session (or a grade of "F" will be assigned). Due to the course format, requests for incompletes will not be considered.

APPENDIX 2: GENERAL WORKSHOP SCHEDULE

The workshop will utilize a creative, collaborative problem-solving approach. This includes:

Day One: Introduction and Clarification
- Learning about the challenge
- Organizing our questions
- Framing the problem

Day Two: Selection and Ideation
- Selecting a concept
- Forming and developing your team
- Ideating (brainstorming)
- Re-framing the problem

Day Three: Development and Coaching
- Developing and refining the proposed solution

Day Four: Coaching and Refinement
- Refining the proposed solution
- Developing your pitch

Day Five: Pitch and Jury
- Delivering your pitch
- Jury deliberations

APPENDIX 3: SUPPLIES LIST

Throughout the week, plan on the following:

- **Drawing and notetaking supplies:** While some supplies will be on hand, we recommend that you bring pens, pencils, markers, and other media you prefer to use while finding and developing ideas, along with paper, sketchbooks, and/or notebooks.
- **Computing:** A laptop with internet access is recommended for all sessions. While not every student is required to have it, software for writing and graphic design is needed for each team (e.g., Microsoft Word, PowerPoint, Photoshop, Illustrator, etc.).
- **Food:** Light breakfast and lunch will be provided.

APPENDIX 4: TEAM SURVIVAL GUIDE

The Global Innovation Challenge is an intense, engaged, and collaborative, *thinking-learning-doing* environment. It simulates the intense, interdisciplinary setting of many modern work environments that tackle complex, ill-defined problems. Problem definition and solution finding are often cyclical and iterative, not linear. Likewise, the methods used are often diverse, and the process is often not fully planned at the outset, but becomes clearer over time (what some call "emergent design"). Flexibility, in both working and thinking, is essential, particularly as problems and

solutions come from multiple domains and multiple scales. Often times, individual success depends on team success and vice versa.

There is no option to work individually; everyone will be part of a team. Given the number of participants, all teams shall be comprised of 4-6 people. While we will aim to solidify teams at the end of day two, the composition of teams is fluid and the professors reserve the right to change individual team members.

Good teamwork comes from an awareness of oneself, as well as an awareness of the dynamics of the group. Differences in gender and sexuality, race and ethnicity, personality type, life experiences, and a host of other factors influence discussions and, therefore, the progress of the team. Please be mindful and respectful of these differences. Enrollment in the course implies consent with the guidelines below, which are adaptations from and additions to Susskind and Cruikshank's "Suggested Ground Rules" in *Breaking Robert's Rules* (Oxford: Oxford University Press, 2006).

1. Each person agrees to fully participate, through active listening and speaking, in all discussions.
2. Only one person shall speak at a time. Everyone else shall listen keenly, not "wait to talk."
3. Each person is responsible for making sure she/he understands what has been said. Each person shall ask questions of clarification when necessary.
4. Each person shall be as succinct and direct as possible, giving time for others to speak.
5. Each person shall express her/his own views, not speak for others. (E.g., do not preface your comments with "we think"; instead consider saying: "I think.")
6. Each person shall make her/his best effort to stay on topic and follow the trajectory of the conversation.
7. Each person is responsible for stating when she/he disagrees and, then, provide an alternative.
8. Each person shall make every effort to be open-minded and to evaluate others' comments based on the merits of what is being said, not based on personality or biases.
9. Each person shall make clear, when speaking and when listening, the difference between factual statements and statements of opinion.
10. Each person shall seek to identify and clarify multiple sides of a debate (issue), and, simultaneously, seek to provide a common ground (resolution).
11. No one shall ask individuals in the Global Innovation Challenge about their religion, sexuality, ethnicity, other personal information, etc., and at no time will anyone make derogatory or inflammatory comments about individuals or groups based on religion, sexuality, and ethnicity.
12. No one shall make personal attacks. The instructor reserves the right to dismiss anyone from the Global Innovation Challenge and pull anyone aside who does not abide by this or other policies.

APPENDIX 5: EXPERT BIOS

Partner Organization

JULIE SWEETLAND is a sociolinguist and serves as a Senior Advisor at the FrameWorks Institute, where she leads efforts to diffuse the organization's cutting-edge, evidence-based reframing recommendations throughout the nonprofit sector. Since joining FrameWorks in 2012, she has led the development of powerful learning experiences for nonprofit leaders and has provided strategic communications guidance for advocates, policymakers, and scientists nationwide and internationally. Prior to joining FrameWorks, Julie was actively involved in improving teaching and learning for over a decade as a classroom teacher, instructional designer, and teacher educator. At Center for Inspired Teaching, she served as director of teaching and learning and helped to found a demonstration school with an embedded teacher residency. As founding director of the Center for Urban Education, she launched a graduate teacher preparation program for the University of the District of Columbia. Julie's linguistic research has focused on the intersection of language and race; on the role of language variation and language attitudes on student learning; and on effective professional learning for teachers. Her work has appeared in publications such as the Journal of Sociolinguistics, Educational Researcher, and Education Week, and she is the co-author of African American, Creole, and Other Vernacular Englishes in Education. She is a graduate of Georgetown University and lectures regularly at her alma mater. She completed her MA and PhD in linguistics at Stanford University.

Expert Fellow

MARTHA M TÉLLEZ-ROJO, obtained a Ph.D. in Epidemiology from the National Institute of Public Health (NIPH) in Mexico (2003). She is a senior researcher (ICM-F) at the NIPH. Her main focus of research is the effects of environmental exposures on children's health. Since 2003, she has been the principal investigator from the Mexico site of the ELEMENT (Early Live Exposure in Mexico to Environmental Toxicants project) and PROGRESS (Program Research in Obesity, Growth, Environment and Social Stressors) birth cohorts, both mainly funded by the NIH. Dr. Téllez-Rojo has also been very active designing, conducting and analyzing several projects on program evaluation of social interventions. Among the most important projects, she has participated is the impact evaluation of the health component of Oportunidades, the main anti-poverty program in México. She also participated in the impact evaluation of Seguro Popular, a programme aimed to deliver health insurance, regular and preventive care, medicines and health facilities to more than 50 million Mexicans through a randomly assigned treatment within matched pairs of health clusters. She was the principal investigator of the impact evaluation of 70 y más, the federal anti-poverty program for the elderly population that used a quasi-experimental design with a two-way discontinuity regression design. In recent years, she has conducted several national surveys on health-related topics, including the National Survey of Addictions in collaboration with the National Institute of Psychiatry in 2011, and the 2nd National Survey of Exclusion, Intolerance and Violence in High schools conducted under the request of the Ministry of Education 2009.

LIGHT Fellows

Xingyu Chen: Working toward her PhD in Global Gender Studies in the Department of Global Gender and Sexuality Studies, Xingyu Chen's studies focus on military conflicts and their impact on fertility in Asia.

Prathanashree Chhetri: An undergraduate student working toward her degree in Public Health, Ana is focused on finding innovative solutions to assist underresourced communities. Originally from Nepal, Ana lived through the 2015 earthquake, volunteering her time to teach and serve the local community.

Asif Imran: Asif is working toward a PhD in Computer Science and Engineering. He has used his software engineering skills to build health service applications to assist people from Bangladesh, where he is originally from. Asif hopes to one day design an effective disaster management software to ensure effective communication for populations that suffer from natural disasters.

Presenters, Coaches, Judges

Amy Baird
Assistant Professor of Practice - Engineering Education
Dr. Baird's Profile

Laurene Tumiel-Berhalter
Director of Community Translational Research - Family Medicine
Dr. Tumiel-Berhalter's Profile

Emmanuel Frimpong-Boamah
Assistant professor – Urban and Regional Planning
Dr. Frimpong-Boamah's Profile

James Bono
Associate Professor - History
Dr. Bono's Profile

Colleen Culleton
Associate Professor - Romance Languages and Literatures
Dr. Culleton's Profile

Gauri Desai
Adjunct Instructor – School of Public Health and Health Professions
Dr. Desai's Profile

Jeff Good
Professor and Chair – Linguistics
Dr. Good's Profile

Sameer Honwad
Assistant Professor - Learning and Instruction
Dr. Honwad's Profile

Jim Jensen
Professor – Civil, Structural and Environmental Engineering
Director of Undergraduate Studies – Environmental Engineering
Dr. Jensen's Profile

Kenny Joseph
Assistant Professor - Computer Science and Engineering
Dr. Joseph's Profile

Katarzyna Kordas
Associate Professor – Epidemiology and Environmental Health
Dr. Kordas' Profile

Domenic Licata
Instructional Support - Art
Mr. Licata's Profile

Shaanta Murshid
Assistant Professor – Social Work
Dr. Murshid's Profile

Tia Palermo
Associate Professor –Epidemiology and Environmental Health
Dr. Palermo's Profile

Lisette Palestro
Coordinator, Western Region of the New York State Children's Environmental Health Centers
Ms. Palestro's Profile

Jessica Scates
Administrative Coordinator – Community for Global Health Equity
Jessica's Profile

Korydon Smith
Professor and Chair – Architecture
Associate Dean – Academic Affairs
Co-Director – Community for Global Health Equity
Dr. Smith's Profile

Jen Surtees
Associate Professor - Biochemistry
Dr. Surtees' Profile

Janet Yang
Associate Professor - Communication
Dr. Yang's Profile