Course Syllabus

Edit

This course is a project-based experience designed to engage students in development of resilient food, energy, and water supply chains for disaster-prone regions. Students will investigate background factors that provide context for specific disaster-prone regions and viable design solutions. Students will quantify expected reliability and resilience provided by potential solutions. Students will investigate the influences of environmental and social injustices experienced by community partners and chart pathways forward that include their perspectives on potential solutions. Students will emerge with skills for managing such projects, while collaborating closely with communities where unique local factors have significant impacts on sustainable solutions.

During class meetings, independently, and in virtual environments, students will work in teams to resolve design related challenges. Class topics and both recorded and live guest lectures will focus on the design approaches and assessment of resilience for potential technological and social solutions responding to current and anticipated challenges for disaster prone regions. Term projects will document, organize, and store assessments, analyses, and designs, providing prioritized design, testing, education, management, and business plans for collaborating communities and future students enrolled in this class.

Participation in the course offers an opportunity to participate in an optional study tour (see Optional Study Tour below).

Meetings

Weekly Class Meetings

Groups	Days	Meeting Times	Location
	Mondays and		

All Students	Wednesdays	1:00-1:50 pm	337 NSRC
Graduate and Repeating Undergraduate Students	Wednesdays	2:00-2:50 pm	337 NSRC
ETMA 452	Fridays	1:00-1:50 pm	337 NSRC
ABE 452	Fridays	2:00-2:50 pm	337 NSRC

Personnel

You will be working with a team of instructors and other partners from the Universities of Illinois and Puerto Rico and a non-governmental organization specializing in working in communities, Caras con Causa. This class is built upon a foundation of collaboration, which begins with effective communication. Open, frank, and constructive communication among partners is key for success, thus we advocate for use of the Canvas email system, emailing all of your instructors.

For private matters, however, please email us directly.

A listing of your instructors, and the best ways to contact them.

Name	Contact Information	Office Hours
Luis F. Rodríguez, Ph.D. Associate Professor, ABE Associate Director for Education and Outreach, iSEE	MTThF o: 376C Agricultural Engineering Sciences Building W o: 370 National Soybean Research Center p: +1-217-333-2694 e: **lfr@illinois.edu (mailto:lfr@illinois.edu)**	Drop in: 12-1:00 PM in 376 AESB Fridays or **via Zoom (http pwd=em9GWHNMOFMxL0pWaWdEUnUxeTMzUT09)** . By Reservation: **Accessible to you by reservation via Booki (https://outlook.office365.com/owa/calendar/BioMassLab@uillinc** . Open door policy: You may feel free to drop by at any time to r assured that I will make time to talk to you.

Roger Leyba-Mercado, M.S. Student	o: 374 Agricultural Engineering Sciences Building (AESB) e: rleyba@illinois.edu (mailto:rleyba@illinois.edu)	Office hours every Wednesday from 3 - 4 PM in AESB 374 or v (https://illinois.zoom.us/j/3920481147?pwd=RnJiSkxqQy8yZHhzL other times or online as well if this time does not work for you.

Credits (3 undergraduate; 4 graduate and repeating undergraduate)

Students enrolled in ABE 452 and ETMA 452 earn three undergraduate hours by focusing their efforts on term projects and assignments designed to develop their skills in stochastic design and analysis targeting resilience and a solid contextual understanding of the partner communities.

To earn graduate credit, students will complete additional, advanced assignments in topics listed above and in transdisciplinary research and problem solving, an additional research related project, and provide leadership in multidisciplinary group project related efforts.

Undergraduate students may choose to repeat this course. Given our ongoing collaborations with actual communities, where project-based student challenges are derived in collaboration with community members, an underlying goal of this class experience includes not only generating viable solutions, but also realizing practical implementation within communities. Thus, project related efforts in this class are often carried forward from semester to semester. Because of the nature of the ongoing project efforts, ***undergraduate students may repeat this class one time up to seven hours by enrolling in the graduate section of the course. Students are eligible to repeat if term project projects differ or demonstrably expand on prior efforts. Repeating undergraduate students would enroll in a four-credit section of the class, take on leadership roles in term projects, and complete advanced homework tasks in community-based design and management, as described above.*** Students should consult with Professor Rodríguez to verify that current opportunities meet these requirements and acquire permission to repeat the course.

Graduate students may not repeat this course.

Learning Objectives

This semester we will focus our project efforts on Puerto Rico, where in 2017 Hurricanes Irma and

Maria devastated local infrastructures. Soon after Hurricane Fiona also struck Puerto Rico in 2022. Thus, course objectives are as follows:

All Students

1. Students will demonstrate their understanding of globally relevant issues where problem solving can contribute towards tangible, context sensitive, and resilient solutions;
2. Students will demonstrate their understanding of the political, cultural, and social issues preceding recent disaster related events in Puerto Rico, and how they may affect potential solutions;
3. Students will propose conceptual designs that respond to current concerns influencing disaster resilience;

ABE 452

1. After seeking stakeholder input, students analyze the impacts and costs associated with conceptual designs on resilience and reliability to disaster related events; and
2. Students will apply the principals of stochastic design to consider the uncertainty regarding the frequency and intensity of disaster related events.

ETMA 452

1. After seeking stakeholder input, students analyze the equity, justice, and other ethical implications associated with typical processes utilized to recommend solutions in community-based or participatory processes; and
2. Students will identify strategies for improving impacts of conceptual designs on social infrastructures in communities affected by disasters.

Graduate and Repeating Undergraduate Students

1. Graduate students will develop and demonstrate their trandiscisplinary skills surrounding their mindset, systems thinking, building community networks, project leadership and mutual learning, project management, active reflection, continuous learning, and a transdisciplnary pedagogy.

Course Format

This course will have both in-person and synchronous online delivery (See Weekly Class Meetings, above). In-person meetings will occur twice a week for all students and are devoted our efforts towards term-project related activities.

Synchronous online class meetings for all students will occur on a weekly basis.

- In ETMA 452, we will primarily devote or efforts to development of contextual design and management skills necessary for implementation of sustainable solutions in the context of our partner community groups.
- In ABE 452, we will primarily devote or efforts to development of stochastic design and analysis skills necessary for implementation of sustainable solutions in the context of our partner community groups.

This course depends on significant pre-lecture materials. You are expected to consume and complete preparatory materials asynchronously before the scheduled meeting.

- In ABE 452, this generally refers to completing pre-lecture videos and attempting homework problems. During class, you can expect an additional example problem will be discussed, you will have time to work on additional similar problems, and time to ask questions of the instructors.
- In ETMA 452, this generally refers to completing the assigned readings and pre-lecture videos. During class, you can expect to engage in group discussion on the topics presented that week in preparation for reflective assignments.

Graduate students will meet on a weekly basis, in-person, where we will focus our efforts on developing skills in transdisciplinary problem solving. Seeking solutions to disaster resilience related problems, such as those considered here, benefit from transdisciplinary expertise. Students in each course will have assignments tailored to their backgrounds designed to build their skills in addressing grand challenges such as these.

Optional Study Tour

Some students may choose to participate an optional study tour where we will visit and directly engage with communities studied in this course. Grades for all students in ABE 452 and ETMA 452 are calculated based on course related activities only, as described in this syllabus. Whether or not students choose to participate in study tours is not factored into student grades in this course. Students who do choose to participate in study tours will register for ABE 398, Special Topics, with Professor Rodríguez, and will be graded and receive credit separately for their efforts in ABE 398 while on travel.

Any travel related costs are incurred primarily by students based on a schedule of fees prepared by IPENG and ACES Abroad. Students should consult with Professor Rodríguez and IPENG or ACES Abroad for specific details. Our colleges and campus offer several scholarship opportunities to defray a portion of travel related costs.

Please note: applications to participate in the study tour as well as applications for financial support are due on February 15, 2026.

Required Materials

- ***ABE 452***: **Ang, A. H.-S., & Tang, W. H. (2006). *Probability Concepts in Engineering: Emphasis on Applications to Civil and Environmental Engineering* (2 edition). Wiley. (https://www.wiley.com/en-us/Probability+Concepts+in+Engineering%3A+Emphasis+on+Applications+to+Civil+and+Environmen p-9780471720645)**
- ***ETMA 452***: **Costanza-Chock, S. (2020). *Design justice: Community-led practices to build the worlds we need*. The MIT Press. (https://designjustice.mitpress.mit.edu/)**
- This course website.
- Your laptop
- Slack
- Google Drive

Basic Course Policies

Our course website includes several weekly tab blocks that list relevant preparatory materials, daily class agenda, and homework. Please be mindful to ensure you know which materials apply to you they are contained on the follow tabs, within each module.

Modules to focus on

	First-time Undergraduatess	**Graduates and Repeating Undergraduates**
ABE452	• Engineering for Disaster Resilience • Term Project	• Engineering for Disaster Resilience • Term project • Achieving Transdisciplinarity
EMA452	• Community-based Design and Management • Term Project	• Community-based Design and Management • Term project • Achieving Transdisciplinarity

Evaluation

There are three categories of effort that will be evaluated to determine grades in this course: participation, homework, and group term projects. Graduate students and repeating undergraduate students will complete additional advance homework problems and an addition individual term project. Graduates and undergraduates will be evaluated on similarly designed scales. Given the additional work expected of graduate students, additional points are allocated to graduate work. There is a late assignment policy all students should be aware of. There are several opportunities for extra credit.

In all cases, we will calculate both curved and standard grades and the highest of the two possible scores will be awarded to the student.

Undergraduate Evaluation

In general, we will adhere to a standard grading scale. This course is graded out of approximately 1000 points distributed below, as follows.

First-time undergraduate grade scale	
A+	> 98.00% (>980.0)
A	90.00-97.99% (900.0-979.9)
A-	88.00-89.99% (880.0-899.9)
B+	85.00-87.99% (850.0-879.9)
B	80.00-84.99% (800.0-849.9)
B-	78.00-79.99% (780.0-799.9)
C+	75.00-77.99% (750.0-779.9)
C	70.00-74.99%

	(700.0-749.9)
C-	68.00-69.99% (680.0-699.9)
D+	65.00-67.99% (650.0-679.9)
D	60.00-64.99% (600.0-649.9)
F	<60.00% (<600.0)

Graduate and Repeating Undergraduate Evaluation

We will similarly adhere to a standard grading scale; however, given the additional problem sets and additional project, graduate and repeating undergraduate students and will be graded out of approximately 1300 total points distributed below, as follows.

Graduate and repeating undergraduates grade scale	
A+	> 98.00% (>1274.0)
A	90.00-97.99% (1170.0-1273.9)
A-	88.00-89.99% (1144.0-1169.9)
B+	85.00-87.99% (1105.0-1143.9)
B	80.00-84.99% (1040.0-1104.9)
B-	78.00-79.99% (1014.0-1039.9)
C+	75.00-77.99% (975.0-1013.9)
C	70.00-74.99% (910.0-974.9)
C-	68.00-69.99%

	(884.0-909.9)
D+	65.00-67.99% (845.0-883.9)
D	60.00-64.99% (780.0-844.9)
F	<60.00% (<780.0)

Late Assignments

```
10% deducted per day, up to 50%; No assignments accepted after the 7th day
```

As our programming grows, so do our responsibilities. Delivering on those responsibilities requires efficient course management. These logistics demand that we move through assignments efficiently. Late assignments are assessed a 10% penalty deducted from the total possible score. This penalty will be assessed up to 50% of the possible score. This penalty will be assessed on both business days and weekends. Assignments will not be accepted past the seventh day.

Assignments

There are three primary categories of types of assignment you need to be aware of to be successful in this class: Participation, Homework, Term and Graduate Research Projects. Assignments will be either group or individual.

Participation

```
15% of total grade for undergraduates
12% of total grade for graduates
150 points for all students
```

Class participation will be quantitatively assessed for each individual in this class and calculated to the maximum extent possible using the following assessments. Active and sincere participation in this course is essential for its success. You will all engage with stakeholders to our projects directly and some of your classmates will eventually travel as a group to Puerto Rico and in doing so we will collectively represent the Department of Agricultural and Biological Engineering, the College of Agricultural, Consumer, and Environmental Sciences, the College of Engineering, the University of Illinois at Urbana-Champaign, the State of Illinois, and the United States of America. At any time, lack of participation by any of us will reflect negatively on not only on the individual, or our group, but also everything we represent.

Furthermore, we have a long-term commitment in this course to assess potential socio-technological solutions that may be implemented via several follow up projects after this course is ended. Demonstrating engagement in the process early and throughout is essential for the general success of the class.

Participation is considered at every class session using participation-based assignments which must be completed either prior to or during your class session. You are expected to arrive on time. Our Monday and Wednesday sessions are short but filled with many important term project related activities. The combination of your completion of the participation-based assignments and your timely attendance will constitute this portion of your grade. We know our campus is expansive, and transit between classes can be challenging. We will do what we can to work with you, but we also need you to acknowledge that our time is valuable and limited. There will be impacts to chronic late arrivals or early departures on your ability to positively impact our community partners.

In case of an emergency that causes you to miss multiple class sessions (often 3 or more is a major concern in any class), please contact the **Student Assistance Center in the Office of the Dean of Students (https://www.odos.illinois.edu/community-of-care/student-assistance-center/)** . Please read the **University's Revised Student Code of Conduct (https://studentcode.illinois.edu/article1/part5/1-501/)** , which considers class attendance closely if you have any concerns.

These participation assignments are designed to ensure that all students can actively reflect upon all projects and how fundamental materials presented here contribute towards resilient designs for our community members. This provides a structure for students to add their expertise towards these projects in a safe and anonymous manner. Feedback provide during these intervals will be reviewed by project teams, prioritized and acted upon. Students are encouraged to provide their feedback directly to project teams on a regular basis.

Several assignments throughout the semester are group assignments (e.g. Technology Concept, Annotated Bibliography, Outlines, Poster, Report). You will be asked to quantitatively review the quantity and quality of participation of your group members at several intervals throughout the semester. Your participation in these assessments will be recorded and used to determine the value of your participation during group activities.

Homework

```
35% of total grad
350 points for undergraduates
450 points for graduates and repeating undergraduates
```

Homework packets testing the theory, problems solving, and design of systems where disaster resilience is among the design requirements will be provided and completed by the students. Homework will be completed individually.

Term and Graduate Research Projects

```
50% of total grade for undergraduates
500 points divided across several phases of a scaffolded project
56% of total grade for graduates and repeating undergraduates
700 points for graduates and repeating undergraduates
```

In this course, you will contextually analyze the viability of one of several technological solutions that may alleviate challenges recovering from the aftermath of Hurricane Maria in Puerto Rico. You will document what you have learned and propose potential solutions for improving the sustainability of these systems. These potential solutions will be prioritized by the class in collaboration with our collaborators. A scaffolded process is utilized to facilitate the development and review of potential solutions and information transfer across the various projects. This semester the scaffolded steps of these projects and the point allocations are as follows.

Term Projects will be implemented in assigned groups, composed of both graduates and undergraduates.

Graduate Research Projects will be evaluated similarly, using a scaffolded set of assignments. implemented individually.

Basic descriptions of term projects for graduate and undergraduate students. Projects are scaffolded through several stages of development and review throughout the semester.

Project Area	Description
Background Research **10% of Project** **Term: 50 Points**	This assignment is designed to cause you to document what you currently believe is important for disaster recovery and the current project for this course. We will provide some initiation points for your effort through stakeholder engagement and, in addition to your instructors, we will rely on some students in the course who are repeating the class for their additional experience. This assignment forms the basis of your process of identifying realistic opportunities for improving the situation, while

Grad: 20 Points	considering both positive and negative impacts on other sectors, and the constraints inherent with limited access to standard infrastructures and resources. This shall guide subsequent research and problem solving. You might equate this effort to an annotated bibliography that precedes a literature review.
Conceptual Idea and Project Outlines **20% of Project** **Term: 100 Points** **Grad: 40 Points**	By now you and your team have identified one or more exciting opportunities for addressing the aftermath of Hurricane Maria and you have initiated your research supporting your position. This assignment is designed to outline your research objectives and methods in the form of an annotated bibliography, target milestones, system designs, reliability schematics, and presentations to your peers and collaborators. These conceptual ideas are developed early in the semester and provide a basis for considering how we may improve our ideas. Ideas continue to evolve from here.
Draft Project Reports **20% of Project** **Term: 100 points** **Grad: 40 Points**	You present a draft of your project for instructor evaluation. Templates including all required sections and analysis will be provided. These components, including the system technical designs and reliability schematics, must be included and of sufficient quality to earn full points on final report submission. Examples will be provided to guide you and quality should be commensurate with stakeholder expectations. Consult your instructors for instruction, feedback, and help early on if you any questions or concerns.
	You will present a near final draft of your project. This is a ‘near final’ draft as if some of your

Near Final Project Reports **50% of Project** **Term: 250 Points** **Grade: 100 Points**	classmates may have the opportunity to engage directly with our stakeholders during the optional study, then they will revise and present the final draft for this term. The purpose of these project plans is to help you communicate your ideas to those who might collaborate with you in the future. These individuals include those are outside this class, but who might help you implement your project, those who might fund your project in the future, and future students in this class who will follow up on your legacy. This document will summarize your work after you have completed a semester of effort on this topic.

Extra Credit

```
50 points distributed across several opportunities
```

Each semester there are several opportunities to earn extra credit. This course is a component for a variety of projects targeting disaster relief and resilience for our partner communities. Thus, to facilitate and support this process, we ask you to complete several forms and complete several surveys. Completion of these documents is renumerated to you with extra credit. A total of 50 points or 1/2 of a letter grade of extra credit is available.

Additional Resources

Disaster Relief

- Cannon, T. (2008). Vulnerability, “innocent” disasters and the imperative of cultural understanding. *Disaster Prevention and Management; Bradford*, *17*(3), 350–357. **http://dx.doi.org.proxy2.library.illinois.edu/10.1108/09653560810887275 (http://dx.doi.org.proxy2.library.illinois.edu/10.1108/09653560810887275)**
- Johnson, L. A., & Olshansky, R. B. (2017). After Great Disasters: An In-Depth Analysis of How Six Countries Managed Community Recovery. Cambridge, Massachusetts: Lincoln Institute of Land Policy. Retrieved from **https://www.lincolninst.edu/publications/books/after-great-disasters (https://www.lincolninst.edu/publications/books/after-great-disasters)**

Damage Assessment

- FEMA. (n.d.). *Damage Assessment for Public Works Toolkit* (No. IS-556) (p. 58). Federal Emergency Management Agency: Emergency Management Institute. Retrieved from **https://emilms.fema.gov/is556/lesson4/Toolkit.pdf (https://emilms.fema.gov/is556/lesson4/Toolkit.pdf)**
- HSEM. (2016). *Preliminary Damage Assessment Field Guide* (p. 37). Minnesotta: Minnesotta Homeland Security and Emergency Management. Retrieved from **https://dps.mn.gov/divisions/hsem/disaster-recovery/Documents/preliminary-damage-assessment-field-guide-with-pa.pdf (https://dps.mn.gov/divisions/hsem/disaster-recovery/Documents/preliminary-damage-assessment-field-guide-with-pa.pdf)**
- Pultz, S. (2016). *Damage Assessment Operations Manual: A Guide to Assessing Damage and Impact* (p. 128). Federal Emergency Management Agency. Retrieved from **https://www.fema.gov/media-library-data/1459972926996-a31eb90a2741e86699ef34ce2069663a/PDAManualFinal6.pdf (https://www.fema.gov/media-library-data/1459972926996-a31eb90a2741e86699ef34ce2069663a/PDAManualFinal6.pdf)**

Engineering Solutions

- Amadei, B. (2014). *Engineering for Sustainable Human Development: A Guide to Successful Small-Scale Community Projects*. Reston, VA: American Society of Civil Engineers. **https://doi.org/10.1061/9780784413531 (https://doi.org/10.1061/9780784413531)**
- Ang, Alfredo H.-S., & Tang, W. H. (2006). *Probability Concepts in Engineering: Emphasis on Applications to Civil and Environmental Engineering* (2 edition). Wiley.
- Ang, Alfredo Hua-Sing, & Tang, W. H. (1984). *Probability Concepts in Engineering Planning and Design, Vol. 2: Decision, Risk, and Reliability* (First Edition edition). John Wiley & Sons Inc.
- Bruhn, R. C., Stablein, M. J., & Rodriguez, L. F. (2022). Rainwater Harvesting System for Water Supply. *2022 ASABE Annual International Meeting, July 17-20, 2022*. 2022 ASABE Annual International Meeting, July 17-20, 2022, Houston, TX. **https://doi.org/10.13031/aim.202200678 (https://doi.org/10.13031/aim.202200678)**
- Elsayed, E. A. (2021). *Reliability Engineering, 3rd Edition | Wiley*. **https://www.wiley.com/en-us/Reliability+Engineering%2C+3rd+Edition-p-9781119665922 (https://www.wiley.com/en-us/Reliability+Engineering%2C+3rd+Edition-p-9781119665922)**
- Haldar, A., & Mahadevan, S. (2000). *Probability, reliability, and statistical methods in engineering design*. John Wiley.
- Lucena, J., Schneider, J., & Leydens, J. A. (2010). *Engineering and Sustainable Community*

Development. Morgan & Claypool. https://www-morganclaypool-com.proxy2.library.illinois.edu/doi/abs/10.2200/S00247ED1V01Y201001ETS011 (https://www-morganclaypool-com.proxy2.library.illinois.edu/doi/abs/10.2200/S00247ED1V01Y201001ETS011)

- Mihelcic, J. R., Fry, L. M., Myre, E. A., Phillips, L. D., & Barkdoll, B. D. (Eds.). (2009). *Field Guide to Environmental Engineering for Development Workers: Water, Sanitation, and Indoor Air*. Reston, VA: American Society of Civil Engineers. https://doi.org/10.1061/9780784409855 (https://doi.org/10.1061/9780784409855)
- Tortorella, M. (2015). *Reliability, Maintainability, and Supportability* (1st ed.). John Wiley & Sons, Ltd. https://doi.org/10.1002/9781119058823 (https://doi.org/10.1002/9781119058823)

Project Management

- Pinto, Jeffrey K. (2021). Project management: Achieving Competitive Advantage. Pearson.

Puerto Rico in Context

- Ayala, C. J., & Bernabe, R. (2009a). 8: Birth of the Estado Libre Asociado. In *Puerto Rico in the American Century: A History Since 1898* (New edition, pp. 162–178). The University of North Carolina Press.
- Ayala, C. J., & Bernabe, R. (2009b). 9: Transformation and Relocation: Puerto Rico's Operation Bootstrap. In *Puerto Rico in the American Century: A History Since 1898* (New edition edition, pp. 179–200). The University of North Carolina Press.
- Cintrón Arbasetti, J., Minet, C., Hernandez, A. V., & Stites, J. (2017, November 13). 100 Years of Colonialism: How Puerto Rico Became Easy Prey for Profiteers. Retrieved February 19, 2018, from http://inthesetimes.com/features/puerto_rico_colonialism_hurricane_vulture_funds.html (http://inthesetimes.com/features/puerto_rico_colonialism_hurricane_vulture_funds.html)
- Dayen, D. (2015, December 11). How Hedge Funds Are Pillaging Puerto Rico. *The American Prospect*. Retrieved from http://prospect.org/article/how-hedge-funds-are-pillaging-puerto-rico (http://prospect.org/article/how-hedge-funds-are-pillaging-puerto-rico)
- García-López, G. A. (2018). The Multiple Layers of Environmental Injustice in Contexts of (Un)natural Disasters: The Case of Puerto Rico Post-Hurricane Maria. *Environmental Justice*, *11*(3), 101–108. https://doi.org/10.1089/env.2017.0045 (https://doi.org/10.1089/env.2017.0045)
- Godreau, I. P. (2015). *Scripts of Blackness: Race, Cultural Nationalism, and U.S. Colonialism in Puerto Rico*. University of Illinois Press. https://muse.jhu.edu/pub/34/monograph/book/37017 (https://muse.jhu.edu/pub/34/monograph/book/37017)

- Meléndez, E. (2017, October 3). The U.S.'s neglect of Puerto Rico has never been benign. Retrieved February 19, 2018, from **https://theglobalamericans.org/2017/10/neglect-puerto-rico-never-benign/ (https://theglobalamericans.org/2017/10/neglect-puerto-rico-never-benign/)**
- Monge, J. T. (1999). Introduction. In *Puerto Rico: The Trials of the Oldest Colony in the World* (Revised edition, pp. 1–20). New Haven: Yale University Press.
- Negrón-Muntaner, F. (2017, September 29). Puerto Rico Was Undergoing a Humanitarian Crisis Long Before Hurricane Maria. Retrieved February 19, 2018, from **https://psmag.com/social-justice/puerto-rico-was-undergoing-a-humanitarian-crisis-long-before-hurricane-maria (https://psmag.com/social-justice/puerto-rico-was-undergoing-a-humanitarian-crisis-long-before-hurricane-maria)**
- Ramos, E. R. (2001). Introduction. In *The Legal Construction of Identity: The Judicial and Social Legacy of American Colonialism in Puerto Rico* (1 edition, pp. 3–24). Washington, DC: Amer Psychological Assn.
- Sotomayor, A. (2016). Introduction. In *The Sovereign Colony: Olympic Sport, National Identity, and International Politics in Puerto Rico* (pp. 1–23). Lincoln: University of Nebraska Press.
- Walsh, M. W. (2015, June 30). The Bonds That Broke Puerto Rico. *The New York Times*. Retrieved from **https://www.nytimes.com/2015/07/01/business/dealbook/the-bonds-that-broke-puerto-rico.html (https://www.nytimes.com/2015/07/01/business/dealbook/the-bonds-that-broke-puerto-rico.html)**

Resilience

- Walker, B. H., & Salt, D. A. (2006). *Resilience thinking: Sustaining ecosystems and people in a changing world*. Island press.

Safety

- CDC. (2017a). *Hurricane Key Messages for Employers, Workers, and Volunteers* (p. 22). Centers for Disease Control and Prevention. Retrieved from **https://www.cdc.gov/disasters/2017_hurricane_keymessages/docs/NIOSH_Emergency_Res (https://www.cdc.gov/disasters/2017_hurricane_keymessages/docs/NIOSH_Emergency_Responder_K**
- CDC. (2017b, October 20). Be Safe After a Hurricane|Hurricanes. Retrieved December 1, 2017, from **https://www.cdc.gov/disasters/hurricanes/be-safe-after.html (https://www.cdc.gov/disasters/hurricanes/be-safe-after.html)**
- CDC. (2017c, November 22). Fact Sheet: Clean Up After a Disaster|Natural Disasters and Severe Weather. Retrieved December 1, 2017, from **https://www.cdc.gov/disasters/cleanup/facts.html**

(https://www.cdc.gov/disasters/cleanup/facts.html)

- CDC. (2017d, November 28). Educational Materials by Topic. Retrieved December 1, 2017, from https://www.cdc.gov/disasters/hurricanes/educationalmaterials.html (https://www.cdc.gov/disasters/hurricanes/educationalmaterials.html)
- NIOSH. (2017, October 16). Guidance for Emergency Responders in U.S. Virgin Islands and Puerto Rico. Retrieved December 1, 2017, from https://www.cdc.gov/niosh/topics/emres/pr-response.html (https://www.cdc.gov/niosh/topics/emres/pr-response.html)

Savior Complex and Voluntourism

- Biddle, P. (2014, February 18). The Problem With Little White Girls (and Boys): Why I Stopped Being a Voluntourist. Retrieved August 28, 2018, from http://pippabiddle.com/2014/02/18/the-problem-with-little-white-girls-and-boys/ (http://pippabiddle.com/2014/02/18/the-problem-with-little-white-girls-and-boys/)
- Kushner, J. (2017, December 21). The Voluntourist's Dilemma. *The New York Times*. Retrieved from https://www.nytimes.com/2016/03/22/magazine/the-voluntourists-dilemma.html (https://www.nytimes.com/2016/03/22/magazine/the-voluntourists-dilemma.html)
- Lesnick, E. S. (2012, January 24). On the Obligatory Picture With Brown Babies: A Critique of Colonialism, Cuteness, Study Abroad and Facebook [Huffpost]. Retrieved August 28, 2018, from https://www.huffingtonpost.com/emily-schorr-lesnick/facebook-photos-abroad_b_1229163.html (https://www.huffingtonpost.com/emily-schorr-lesnick/facebook-photos-abroad_b_1229163.html)

Transdisciplinary Practice

Case Studies

- Markazi, D. M., Brunton, A. M., Margarit, P., Ojeda-Matos, G., Sulistyo, S., Fernández Frey, M., Ramírez Berríos, M., Reed, S. P., Heemstra, J., & Rodríguez, L. F. (2023). Transdisciplinary academic-NGO collaborations for the resilience of food, energy, and water: A case study on the INFEWS-ER experience in post-disaster Puerto Rico. *Frontiers in Environmental Science*, *11*. https://doi.org/10.3389/fenvs.2023.1108375 (https://doi.org/10.3389/fenvs.2023.1108375)
- (https://doi.org/10.3389/fenvs.2023.1108375) Stablein, M. J., Gonzalez Cruz, J., Fidan, E. N., Talbot, J., Reed, S. P., Walters, R. S., Ogunyiola, A. J., Fernández Frey, M., Ramirez, M., Rosado Casanova, B., Heemstra, J., Marshall, A., & Rodríguez, L. F. (2022). Compound[ing] disasters in Puerto Rico: Pathways for virtual transdisciplinary collaboration to enhance community resilience. *Global Environmental Change*, *76*,

102558. https://doi.org/10.1016/j.gloenvcha.2022.102558 (https://doi.org/10.1016/j.gloenvcha.2022.102558)

Stakeholder Engagement

- Brandt, P., Ernst, A., Gralla, F., Luederitz, C., Lang, D. J., Newig, J., Reinert, F., Abson, D. J., & von Wehrden, H. (2013). A review of transdisciplinary research in sustainability science. *Ecological Economics*, *92*, 1–15. https://doi.org/10.1016/j.ecolecon.2013.04.008 (https://doi.org/10.1016/j.ecolecon.2013.04.008)
- Butler Flora, C., Emery, M., Fey, S., & Bregendal, C. (n.d.). *Community Capitals: A Tool for Evaluating Strategic Interventions and Projects*(p. 2). North Central Regional Center for Rural Development, Iowa State University.
- Reed, M. S., Graves, A., Dandy, N., Posthumus, H., Hubacek, K., Morris, J., Prell, C., Quinn, C. H., & Stringer, L. C. (2009). Who's in and why? A typology of stakeholder analysis methods for natural resource management. Journal of Environmental Management, 90(5), 1933–1949. https://doi.org/10.1016/j.jenvman.2009.01.001 (https://doi.org/10.1016/j.jenvman.2009.01.001)

Starting with Why

- (http://pippabiddle.com/2014/02/18/the-problem-with-little-white-girls-and-boys/) Hartman, E. (2018). Becoming More Human, Building a Better World. Retrieved August 28, 2018, from https://www.communityworksinstitute.org/cwjonline/essays/a_essaystext/hartman-human.html (https://www.communityworksinstitute.org/cwjonline/essays/a_essaystext/hartman-human.html)
- (https://www.communityworksinstitute.org/cwjonline/essays/a_essaystext/hartman-human.html) Iyer, P. (2000, March 18). Why we travel. Retrieved August 28, 2018, from https://www.salon.com/2000/03/18/why/ (https://www.salon.com/2000/03/18/why/)

Standards of Professional Behavior

- Turn off your cell phone at the start of every class and during key events in Puerto Rico. Any exceptions require instructor approval.
- Critical thinking is expected and discussions reflect individual investment. Keep criticisms issue-based and factual. Personal attacks are not tolerated under any circumstances.
- Energy! We are actively working in each class period. You should arrive ready to work. Get your rest the night before. Stay up to date on your assignments.

Academic Integrity

The University of Illinois at Urbana-Champaign Student Code should also be considered as a part of this syllabus. Students should pay particular attention to Article 1, Part 4: Academic Integrity. Read the Code at the following URL: **http://studentcode.illinois.edu/ (http://studentcode.illinois.edu/)** .

Academic dishonesty may result in a failing grade. Every student is expected to review and abide by the Academic Integrity Policy: **http://studentcode.illinois.edu/ (http://studentcode.illinois.edu/)** . Ignorance is not an excuse for any academic dishonesty. It is your responsibility to read this policy to avoid any misunderstanding. Do not hesitate to ask the instructor(s) if you are ever in doubt about what constitutes plagiarism, cheating, or any other breach of academic integrity.

Special Considerations: Caring for your health and safety

Diversity and Integration Statement

The Instructional Team is committed to the creation of a fully inclusive community that welcomes diversity and encouraged integration along a number of dimensions, including, but not limited to, race, ethnicity and national origins, gender and gender identity, sexuality, disability status, class, age, or religious beliefs. We especially recognize that we are learning together in the midst of the Black Lives Matter movement, that Black, Hispanic, and Indigenous voices and contributions have largely either been excluded from, or not recognized in, food, agriculture, or society writ large, and that both overt racism and micro-aggressions threaten the well-being of our students and our university community. Indeed, the effectiveness of this course is dependent upon each of us fostering the creation of a safe and encouraging learning environment that allows for the open exchange of ideas while also ensuring equitable opportunities and respect for all of us. Everyone is expected to help establish and maintain an environment where students, staff, and faculty can contribute without fear of personal ridicule, or intolerant or offensive language. If you witness or experience racism, discrimination, micro-aggressions, or other offensive behavior, you are encouraged to bring this to the attention of the course director if you feel comfortable. You can also report these behaviors to the Bias Assessment and Response Team (BART) (https://bart.illinois.edu/). Based on your report, BART members will follow up and reach out to students to make sure they have the support they need to be healthy and safe. If the reported behavior also violates university policy, staff in the Office for Student Conflict Resolution may respond as well and will take appropriate action.

Students with Disabilities

To obtain disability-related academic adjustments and/or auxiliary aids, students with disabilities must contact the course instructor as soon as possible. To ensure that disability-related concerns are properly addressed from the beginning, students with disabilities who require assistance to participate in this class should contact Disability Resources and Educational Services (DRES) (**http://www.disability.illinois.edu/ (http://www.disability.illinois.edu/)**) and see the instructor as soon as possible. If you need accommodations for any sort of disability, please speak to me after class, or make an appointment to see me, or see me during my office hours. DRES provides students with academic accommodations, access, and support services. To contact DRES you may visit 1207 S. Oak St., Champaign, call 333-4603 (V/TDD), or e-mail a message to **disability@illinois.edu (mailto:%20disability@uiuc.edu)** .

Additional Statement on Accessibility during COVID-19

This semester presents new challenges for all of us, and many students may not know right away how COVID-19 requirements and procedures may affect their classroom experience. I am committed to working with you to create a rigorous and flexible space for learning. If at any time you are experiencing difficulty in any aspect of this course due to social distancing and the mandatory wearing of face coverings, you are welcome to share your concerns with me. Please note that you never need to share diagnosis or medical information with me. The staff members with Disability Resources and Educational Services and the Office for Access & Equity are also available to provide guidance and advice if you have questions or concerns related to a visible or invisible disability.

- Disability Resources and Educational Services (**https://www.disability.illinois.edu (https://www.disability.illinois.edu)**)
- Office for Access & Equity (**https://oae.illinois.edu (https://oae.illinois.edu)**)

Emergency Response Recommendations

Emergency response recommendations can be found at the following website: **http://police.illinois.edu/emergency-preparedness/ (http://police.illinois.edu/emergency-preparedness/)** . I encourage you to review this website and the campus building floor plans website within the first 10 days of class: **http://police.illinois.edu/emergency-preparedness/building-emergency-action-plans/ (http://police.illinois.edu/emergency-preparedness/building-emergency-action-plans/)** .

Family Educational Rights and Privacy Act (FERPA)

Any student who has suppressed their directory information pursuant to Family Educational Rights and Privacy Act (FERPA) should self-identify to the instructor to ensure protection of the privacy of their attendance in this course. See **https://registrar.illinois.edu/academic-records/ferpa/ (https://registrar.illinois.edu/academic-records/ferpa/)** for more information on FERPA.

Sexual Misconduct Policy and Reporting

The University of Illinois is committed to combating sexual misconduct. Faculty and staff members are required to report any instances of sexual misconduct to the University's Title IX and Disability Office. In turn, an individual with the Title IX and Disability Office will provide information about rights and options, including accommodations, support services, the campus disciplinary process, and law enforcement options.

A list of the designated University employees who, as counselors, confidential advisors, and medical professionals, do not have this reporting responsibility and can maintain confidentiality, can be found here: **wecare.illinois.edu/resources/students/#confidential (https://wecare.illinois.edu/resources/students/#confidential)** .

Other information about resources and reporting is available here: **http://wecare.illinois.edu (http://wecare.illinois.edu/)** .

Counseling and Personal Concerns

Successfully negotiating the demands of undergraduate classes, work, and life requires consistent attention. It's okay to seek professional help, and you just may acquire skills that will benefit every area of your life. The **University of Illinois Counseling Center (http://www.counselingcenter.illinois.edu/)** offers comprehensive services ranging from self-help materials to individual and couples counseling and suicide prevention, and features same-day appointments at no cost to you. Take advantage of them at before you get in over your head.

Follow Us On Social Media!

- **Instagram (https://www.instagram.com/uiuc_pr/)**
- **Facebook (https://www.facebook.com/UIUCPuertoRicoDisasterRelief/)**
- **Twitter (http://twitter.com/biomasslab?lang=en)**
- **Video on past trips (https://drive.google.com/file/d/1NY16hCCGDkWIFgVCQB2PTS4IYI0tFtLf/view?usp=drivesdk)**