# GCIL-India
## Winter 2023 (January 3 - March 12)
## 15 credits

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## Program objective
Empower students to solve grand challenge problems. Approaches used to meet that objective include application of design thinking, lean startup, and social innovation to environmental, health, and social challenges facing Bangalore, India; and, working in interdisciplinary teams, with a local organization, to design a for-profit or non-profit social enterprise.

## Audience
Motivated students who are passionate about having lasting, positive social impact.

## Overview
Through the Grand Challenges Impact Lab (GCIL), students learn about GCs and are invited to propose and test solutions. GCIL is a quarter-long (10-week) program offered during Winter Quarter in Bangalore, India. The program provides an active, hands-on learning laboratory. This class could fulfill capstone / practicum requirements; talk with the instructor or your department for details.

## Definitions
*Grand Challenges* (GC) are the tough, seemingly unsolvable problems facing humanity. Examples include climate change, global poverty, clean air, clean water, gender empowerment, and racial inequality. They are sometimes also called "wicked problems" or "sticky problems". GCs are too big for any one discipline; interdisciplinary and multidisciplinary teams are required to design real solutions.
*Social enterprise* is an organization (for-profit or non-profit) that uses business principles to solve health, social, or environmental challenges without an exclusive dependency on "charitable" grants or donations. Social enterprises aim to solve real problems for real people in a way that can scale across time and location.

## Teaching methods
1) In-class presentations by local experts, including researchers and practitioners from nongovernmental organizations, businesses, entrepreneurial groups, government, and academia.
2) Field visits to communities, social enterprises, and project sites in and around Bangalore.
3) Readings on GCs, social entrepreneurship, business model creation, and society in India.

**4)** In-class discussions and student presentations.
**5)** A team-based project to identify a problem in India and to propose a potential solution.
**6)** Immersion in a local organization working on a GC.

## Course Components

*Weeks 1-3: Cultural Immersion, Study of Local Social Enterprise, Learn Core "Tools"*
Students learn about GCs in areas such as food security, livelihoods, clean water, clean energy, and public health. Local profession/als will visit the class and will lead local visits to share insights into how communities in Bangalore experience GCs and the approaches that have succeeded and failed in addressing them. Students also learn "tools" of entrepreneurship such as design thinking, lean startup, and social innovation.

*Weeks 4-10: Placements with Social Enterprises, Teams Design a Social Enterprise*
Students work in interdisciplinary teams to understand and address a GC. Teams will be placed with a local organization that has experience with a GC, and will work with local mentors and UW faculty members. Each team has two projects: (1) The class project is to design a new social enterprise. Teams identify a population or community experiencing the GC, define the GC problem facing that population, consider potential solutions, and design a solution to meet the population's needs. (2) The partner-organization project involves a specific team project designed by the organization, for students to assist the organization and deliver value, while learning about the organization and the GC.

## Learning objectives

**1)** Work in interdisciplinary teams to understand and address a GC
**2)** Identify a population or community experiencing the GC and understand its needs, assets, and where it fits in the broader ecosystem
**3)** Define a GC problem facing that population, advocate for potential solutions that can improve overall health, environment, and well-being
**4)** Design a financially self-sustaining solution to meet the population's needs
**5)** Translate new and existing skills into a positive social impact
**6)** Deliver value to an existing social enterprise
**7)** Determine the most effective technology, business plan, and organizational structure to maximize impact and to engage an interdisciplinary team to address the GC
**8)** Understand professional and ethical responsibilities within the context of a culture and an organization, while interacting with potentially vulnerable populations
**9)** Recognize the need for and an ability to engage in lifelong learning
**10)** Build skills in communication and design

## Prerequisites

The class is open to graduate students and undergraduate juniors and seniors from any department. There is a required 1-credit Fall Quarter introductory course to prepare students.

## Diversity Requirement

This course fulfills the University of Washington Diversity Requirement. The University requires all undergraduates to take a minimum of 3 credits, approved by the appropriate school or college, that focus on the sociocultural, political, and/or economic diversity of the human experience at local, regional, or global levels. This requirement is intended to help students develop an understanding of the complexities of living in an increasingly diverse and interconnected societies. Courses that fulfill the diversity requirement focus on cross-cultural analysis and communication, and historical and contemporary inequities such as those associated with race, ethnicity, class, sex and gender, sexual orientation, nationality, ability, religion, creed, age, and socioeconomic status. Course activities should encourage thinking critically about topics such as power, inequality, marginality, and social movements, and support effective cross-cultural communication skills.

These three credits will simultaneously satisfy other Areas of Knowledge requirements and do not add to the total number of credits you need to graduate.

## Grading

*Class and Partner Projects: **50%***
During the final 7 weeks, teams work on two projects: the class project involves designing a social enterprise; the partner-organization project will be established by the organization and the student-team. Deliverables for this grade: a 2-minute final video (on the class project) and two of each of the following (one for the class project, one for the partner-organization): a draft report, a final report, a final presentation.

*Class Participation: **25%***
GCIL requires engaging fully in the resources and opportunities offered by this class. Deliverables include actively participating in and contributing to the team and class discussions and engagement with the local partner-organization and with instructors and mentors. Tardiness or non-attendance will affect the class participation grade.

*Homework Assignments: **25%***
There will be individual and group assignments during the 10 weeks, including several weekly assignments: presentations, posting to social media, and blog assignments.

Each student must turn in all assignments on time in order to receive the full credit for the class. At the end of the program, each person will provide feedback regarding contributions of each of their teammates to the final product; this feedback will factor into your individual grade.

| Assignments | Due date | Description | Type |
|---|---|---|---|
| Book discussion | 01/11 (discussion 1/13) | 3 or more chapters of *Whole Numbers and Half Truths* by Rukmini S. | Participation |
| Tool book presentation | 02/6 | Presentation + Activity based on assigned book | Participation |
| Graduate student presentations | 02/8 (morning) | Presentation: best practices environmental engineering topics | Homework |

| | | Presentation: your idea from the point of | |
|---|---|---|---|
| Story in 7 sentences | 02/8 (morning) | view of your customer | Project |
| Initial report to partner org | 02/13 | First report for partner project | Project |
| Initial report to GCIL | 02/13 | First report for class project | Project |
| 2-min video - final draft | 03/3 | Final-draft video (description; storyboard; text) for class project | Project |
| Final report to partner organization | 03/9 | Final report - partner project | Project |
| Final report to GCIL | 03/9 | Final report - class project | Project |
| 2-min video - final | 03/10 | Final video for class project | Project |
| 10-min presentation (org) | Final week, Mon-Thurs (during 3/6 - 3/9) | Final partner project presentation, given to partner org | Project |
| 10-min presentation (class) | 03/10 | Final class project presentation | Project |
| 3-min presentation (org) | 03/10 | Summary of partner project, given in class | Project |
| Team resource grid | Weekly | Team-based. Description below | Homework |
| Flipgrid - once/week/team | Sunday 7 pm | Team-based. Description below | Homework |
| Twitter(Mastodon-LinkedIn) - once/week/person, on assigned team day | midnight on assigned day | Team-based. Description below | Homework |
| Instagram - once/week/person, on assigned team day | midnight on assigned day | Team-based. Description below | Homework |
| Facebook - once/week/person on assigned team day | midnight on assigned day | Team-based. Description below | Homework |
| Blog - once/two-weeks/ person on assigned day | As assigned | Individual assignment (5 times/person) | Homework |

## Assignments

### Team Assignments

**Oral presentations**

Teams' final presentations occur at the end of the quarter. Teams will also do practice presentations in advance (dates announced later).

**Flipgrid (starts after week 4 [i.e., first flipgrid due January 31]) -** Due weekly by end of day
Tuesday. Up to 5 minutes in length. https://flip.com/b1f27999
Every team posts 1 video per week.
In the video, talk about your projects: What you've done, what worked, what did not work, what have you learned, what do you plan to do next (and why), what questions do you have for your mentor?

**Social media -** Due weekly, by team

> **Weekly Schedule:**
> - Monday: Biome
> - Tuesday: The Ugly Indian
> - Wednesday: Hasiru Dala
> - Thursday: Parikrma

You are GCIL. As one aspect of documenting and reflecting on your experiences, while in India you will post to social media from the GCIL social media accounts. We are on "three" platforms: (1) Twitter/Mastodon/LinkedIn, (2) Instagram, (3) Facebook.

Social media posts should reflect your activities in India, and what you/we are seeing and experiencing. Your thoughts and experiences are professional and personal; they reflect you, your teammates, your classmates, GCIL, UW, our partners, local experts we work with, and others. Social media posts also need to be respectful of individuals, organizations, and culture. "Social media stops at dinner." Professional/personal/public topics: yes; social/private topics: no.

> **Twitter/Mastodon/LinkedIn** - 1 post/week/person. Post about current events that are relevant to the class, and focus on local organizations that are doing interesting or noteworthy. For example, projects worth learning about, resources, organizations, or other things people will be interested to learn about. These posts are not about *you* or what *you did*. They should be about events and organizations in Bangalore/India and what the organizations did/think/said/etc. They do not have to be specifically related to the class activities; they *do* need to relate to social ventures and grand challenges, when possible with a bias towards solutions rather than problems. Never tweet about Indian politics. Providing links to relevant newspaper, magazine or online sourced articles, or to an organization / program / activity is an excellent way to focus the tweet and to allow readers to get more information if they want it.
>
> **Instagram** - 1 post/week/person. Focus more on what we are seeing, rather than us as a UW program. Use the "comments" section below the photo! In the "comments", describe what is in the picture and why you took the picture; explore "what/so what/now what". Post from the @UWGCIL account. In the comments, always include "#UWGCIL2023" and your team name (no hashtag).
>
> **Facebook** - 1 post/week/person. Post your own photos. These are items that you would feel comfortable sharing with your family and friends. Post from the UWGCIL account. Can focus on us and our experiences in the world.

**General Guidelines:**
1. Stay neutral, with a bias towards positivity. We do not want to offend the government, nor any organization, especially our partners. Focus on solutions/people proposing solutions rather than problems, especially blaming problems on a specific organization.
2. Make sure the content is from a reputable source; where your post points out facts, select facts that are less likely to be controversial.
3. When posting about an issue that has many diverse perspectives and viewpoints, focusing on something positive ("Organization X thinks approach Y will work") is safer than posting

something negative ("Approach Z has these problems"). Even organizations that disagree are less likely to be offended by the first type of post (e.g., even if they think it's wrong/ill-informed/etc.).

**Weekly mentor meetings (starting week 5 [i.e., first meeting will be during the week of January 30)**
These weekly meetings will be arranged weekly between teams and a mentor (Kaylea; Deborah). The Flipgrid video will help guide the mentors to know how teams are progressing. These meetings will provide feedback and give additional input on projects and progress. Include 'GCIL' and your team name (e.g., "GCIL- Biome" at the start of the subject line) in communications (email/WhatsApp/Skype) with the mentor.

**Story in seven sentences** - Due 2/8
Present your social venture idea in the seven-sentence format, from the point of view of your customer. (We will discuss the seven sentences in class.)

**Team resource grid** - Due weekly, in an order chosen by each team. Each Monday morning teams will report what was covered and useful from their grid. There will need to be regular updates in your team's grid online, and by the end of the quarter, teams will have completed at least one task in each section (i.e., one each for Foundations, Practice, and Reflections, for each of the 16 questions – a total of 48 completed per team. On average, this works out to ~8 per week.) Optional: complete the final section ("choose your own adventure") with any activities, readings or exercises that you found useful when answering the question and that you think would benefit other teams.

**Initial reports to partner organization and to GCIL** - Due 2/13. These are two separate reports.

**Final report to partner organization and to GCIL -** Two separate reports. Each team completes two projects: the GCIL class project (due 3/9) and the partner-organization project (due during 3/9).

The report for the GCIL class project is your team's approach to evaluating a GC and solving it. It will be graded by the following:
        (1) Length (requirement: 5-6 pages)
        (2) Rubric questions (see the strength-of-idea rubric in Appendix 1)
        (3) Clear, organized, clean, professional
        (4) Quality of writing
In addition to the 5-6 pages of the main report, reports must include the following five appendices (max: 1 page per appendix): (1) filled-in Theory of Change canvas, (2) a description of a randomized control trial you could conduct to test your Theory of Change, (3) filled-in Empathy Map, (4) documentation of your prototype, and (5) brief description of how you received feedback on your prototype and what feedback you received. Each appendix should be a maximum of 1 page; if needed, students may request prior permission for Appendix #4 (prototype) to be longer than 1 page. Reports can have additional appendices as well, such as technical specifications, details of calculations, financial details, list of competing enterprises, results fieldwork, or other critical but supplemental materials.

The partner project will be based on the agreed upon output requested by the partner organization. Examples include literature reviews, resource allocation designs, stakeholder analysis, effectiveness

analyses, and technology reviews. This project is a specific task that will assist the partner organization in their ongoing activities, and will allow the team to deliver value to the organization.

**Ten minute final presentation -** Due 3/10
At the end of the class, teams will share their GCIL project via a formal presentation. Powerpoint or other media are invited. This presentation will be graded by the following:
      1) Stays within time constraints
      2) Does it answer the rubric questions?
      3) Is it clear?
      4) Robust use of visual display
      5) Is it engaging?
      6) Q&A session further demonstrates depth of knowledge

**Final presentation on your partner project, to your partner org** - during the final week of the program (during Monday - Thursday, 3/6 - 3/9); will happen at your partner organization.

**Final presentation on your partner project, in class** - on 3/10. Format (poster/oral presentation) will be determined at a later date. This presentation will happen in class, on the same day as your final presentation on your class project.

**Two minute video: Final draft:** Due 3/3**. Finished video -** Due 3/10 by midnight. This video will describe your GCIL class project and will represent your business plan. Basis for grading:
      1) Time (allowed: between 1 and 2 minutes. Longer is not allowed.)
      2) Does it answer the four rubric topics? (In only 2 minutes it is difficult to answer all 16
         questions; that's ok. But, the video needs to speak to the four general topics.)
      3) Is it clear?
      4) Most importantly, what is the impact? Does it make good use of the medium? Is it engaging?

## Individual Assignments

**Book -** *Whole Numbers and Half Truths* by Rukmini S*.* - Soft deadline: 1/11; hard deadline: 1/13. We will have a discussion about this book during our rural visit, on January 13th. Bring the book and your write-up: (1) find a quote that speaks to a broader theme of the book; share the quote and why you picked it. (2) find a statistic that makes you think differently about the context of your own culture; share it and why you picked it. (3) Questions. The assignment is to read the 4-page conclusion plus three chapters: ch 4, ch 6, and a chapter of your choosing. Read more of the book if you like :-).

**Blog**
Each student will blog about 5 times during the quarter (i.e., once per two weeks) according to dates assigned at the start of class. Note that these will be potentially edited for UW public consumption. Be respectful and be kind but write about what you are experiencing and learning in India both professionally and personally. See last year's blog for examples and inspiration. Email the blog and a relevant picture to Kaylea by 7am so she can receive it and read it before breakfast.

**Design thinking "tool" book exercise -** Due 2/6
Seven books, one or two people per book. Choose one of the following books (must be a different book from your teammates):
      ● Business Model Generation **

- Ten Types of Innovation
- Talking to Humans & Solving Tough Problems (two books) **
- Value Proposition Design **
- Lean Startups for Social Change
- Testing Business Ideas & Testing with Humans (two books)
- Design Thinking for the Greater Good

Each person will read their book and then -- by themselves or together with the other person who read the same book -- will teach the class what they learned: Give a brief presentation on the book and then lead an activity teaching the class the skills from the book. For the activity, don't give a lecture! Intead, design and lead an activity that teaches or illustrates main points.

**Graduate Students:**
Each graduate student will present on a topic of his/her choosing, from among the following: Water Supply and/or Treatment, Wastewater Treatment, Solid Waste Management, Air Quality (Household or Environmental), and Hazardous Waste Management Systems in Developing Countries. Other topics may be considered with the approval of Julian/Deborah. Please provide a topic focus by the end of <u>week 1</u>; confer with the other grad students regarding your preferred topic, to avoid duplication. The following text is recommended: James R. Mihelcic et al., Field Guide to Environmental Engineering for Development Workers. In-class presentations will be ~30 min. In your presentation, please describe 3 randomized control trials that have happened (see peer-reviewed literature) and informed thinking on this topic, and utilize the recommended text to provide a broad overview of best practices with respect to the topic, particularly within the developing country setting. This presentation does not have to be specific to Bangalore, although researching within this setting would likely be helpful.

**Required texts**
Everyone reads these books:
- Rukmini S. *Whole Numbers and Half Truths* New Delhi, India:Context / Westland, 2021. (not the whole book)
- Somini Sengupta. *The End of Karma*. New York: W. W. Norton & Company, 2016.
- Abhijit Banerjee and Esther Duflo. *Poor Economics: A Radical Rethinking of the Way to Fight Global Poverty.* New York: PublicAffairs, 2012.

Each person reads one (or two*) of these "tool" books:
- Alexander Osterwalder and Yves Pigneur. *Business Model Generation.* Hoboken, NJ: John Wiley & Sons 2011.
- Larry Keeley and Helen Walters. *Ten Types of Innovation: The Discipline of Building Breakthroughs.* Hoboken, NJ: John Wiley & Sons 2013.
- Alex Osterwalder. *Value Proposition Design.* Hoboken, NJ: John Wiley & Sons 2014.
- Frank Rimalovski and Giff Constable. *Talking to Humans: Success Starts with Understanding Your Customers.* New York: The Author, 2014.*
- Adam Kahane. *Solving Tough Problems: An Open Way of Talking, Listening, and Creating New Realities.* McGraw-Hill Education 2007.*
- David Bland and Alex Osterwaalder. *Testing Business Ideas.* Hoboken, NJ: John Wiley & Sons 2020. *
- Giff Constable. *Testing with Humans.* New York: The Author, 2018.*
- Michel Gelobter. *Lean Startups for Social Change*. Oakland, CA: Berrett-Koehler Publishers, Inc. 2015.

- Jeanne Liedtka, Randy Salzman and Daisy Azer. *Design Thinking for the Greater Good*. West Sussex, NY: Columbia University Press 2017

*Each person on a team reads a different "tool" book. *Talking to Humans* and *Solving Tough Problems* are combined. *Testing with Humans* and *Testing Business Idea*s are combined.

**Text for graduate students:**
- James R. Mihelcic et al. *Field Guide to Environmental Engineering for Development Workers*. Reston, VA: American Society of Civil Engineers 2009

## Optional texts and videos
- Ramachandra Guha. *Democrats and Dissenters* (Part 1)*.* New Delhi: Penguin 2016
- UR Ananthamurthy. *Hindutva or Hind Swaraj*. Noida, Uttar Pradesh, India:Harper Perennial, 2016
- Edward Luce. *In Spite of the Gods: The Rise of Modern India.* New York: Anchor Books, 2012
- IDEO. *The Field Guide to Human-Centered Design: Design Kit.* San Francisco: IDEO, 2015. (Available for download for free at: http://www.designkit.org/resources/1)
- Anand Giridharadas. *India Calling: An Intimate Portrait of a Nation's Remaking.*New York: St. Martin's, 2012
- Arvind Adiga. *The White Tiger.* Free Press, 2008
- Katherine Boo. *Behind the Beautiful Forevers: Life, Death and Hope in Mumbai Undercity.* Penguin India 2013
- Sujatha Gidla. *Ants Among Elephants: An Untouchable Family and the Making of Modern India.* HarperCollins India, 2012
- Dean S Karlan and Jacob Appel. *More Than Good Intentions: How a New Economics Is Helping to Solve Global Poverty*. New York: Dutton, 2011
- John Walker Mullins and Randy Komisar. *Getting to Plan B: Breaking Through to a Better Business Model.* Boston, Mass: Harvard Business Press, 2010
- "Who is Building Whose Capacity?"
- "Design as a Reflective Practice"
- "From the Rights for Development to the Rights-Based Approach"
- "Making the most of experience"
- TED Talk: *Admitting Failure*

We also have a small library of books in the hostel; BMS has an actual library. Check it out!

## Book club (optional)
We are inviting an (optional) student-led book club. If this is of interest, let us know. We can help facilitate interactions with students from BMS. The book club can meet on Saturdays; we will provide lunch. This is an opportunity for thoughtful cross-cultural discussions with peers at BMS. Books listed above ("Optional Texts") are options; we can supply a longer list of options, or you are welcome to propose your own ideas. The BMS students may need to go through a process to get their book approved, and will likely have their own excellent suggestions. This book club will not be implemented or led by faculty; it is student led, if there is interest.

## Personal Day

Each student is allowed one personal day, during the last 7 weeks. This must not interfere with team activities, cannot be used when assignments are due and will be presented, and must not interfere with activities from the partner organization. Students must email Kaylea at least one week in advance and receive approval for this to be an excused absence.

**Religious Accommodations**: Washington state law requires that UW develop a policy for accommodation of student absences or significant hardship due to reasons of faith or conscience, or for organized religious activities. The UW's policy, including more information about how to request an accommodation, is available at Religious Accommodations Policy (https://registrar.washington.edu/staffandfaculty/religious-accommodations-policy/). Accommodations must be requested within the first two weeks of this course using the Religious Accommodations Request form (https://registrar.washington.edu/students/religious-accommodations-request/)."

## Classroom Conduct

Disruptive behavior is prohibited. "Disruptive behavior" means conduct that materially and substantially interferes with or obstructs the teaching or learning process in the context of a classroom or educational setting. Disruptive behavior includes conduct that distracts or intimidates others in a manner that interferes with instructional activities, fails to adhere to an instructor's appropriate classroom rules or instructions, or interferes with the normal operations of the University. Laptops may be used for note taking purposes only unless otherwise specified by the instructor.

## Late Policy

All assignments must be turned in by the due date. An assignment not turned in at or before this time is **late**. Full or partial points will be deducted for late assignments.

## Incompleteness

University rules state that "an incomplete is given only when the student has been in attendance and has done satisfactory work until within two weeks at the end of the quarter and has furnished proof satisfactory to the instructor that the work cannot be completed because of illness or other circumstances beyond the student's control."

## Syllabus Revisions

Students are responsible for all materials, updates and announcements covered during class sessions. The course calendar will likely change over time for multiple reasons including unforeseen circumstances; please be sure you are using the most recent version. Use your WhatsApp and UW email account regularly, so that we can communicate with you as needed. If you wish to use another email address as your primary account, set up your UW account to forward to your other address.

## Academic Integrity

See http://www.washington.edu/cssc/student-conduct-overview/student-code-of-conduct for crucial information regarding academic integrity. You are responsible for knowing what constitutes a violation of the University of Washington Student Code. You will be held responsible for violations whether they were intentional or not.

## Respect for Diversity

Diverse backgrounds, embodiments and experiences are essential to the critical thinking endeavor at the heart of university education. At UW, students are expected to:

- Respect individual differences which may include, but are not limited to: disability, cultural background, age, ethnicity, family status, gender presentation, immigration status, national origin, race, religion, sex, sexual orientation, socioeconomic status, and veteran status.
- Engage respectfully in discussion of diverse worldviews and ideologies embedded in course readings, presentations, and artifacts, including those course materials that are at odds with personal beliefs and values.

Research suggests that having more-diverse teams often improves team performance. That aspect holds for addressing GCs, which require lateral and interdisciplinary thinking. In this course, you will likely gain exposure to beliefs, worldviews, and values that challenge your own beliefs; we invite you to be humble, thoughtful, and contemplative.

## Instructor Bios

### *Julian Marshall, PhD*

In 1998, Marshall quit his job as an environmental engineer, moved to Singapore to teach, then to northern India to volunteer in an ecological development NGO. Via volunteer work in Ladakh, India, he faced common questions about "development," how it works, and what does it mean to help others effectively, especially as an outsider to a culture. Unsure of the answers, but figuring that others may have thought about those questions, he applied to graduate school. Two decades and a PhD later, he is no more sure of the answers, but the questions remain, and with them, his drive to return to India. His recent research in India includes air pollution studies in Delhi, Hyderabad, and Bangalore. Marshall founded and directs GCIL, in part with the goal that GCIL alumni are better prepared to tackle problems than he was. At UW, he is a professor in the Department of Civil and Environmental Engineering. He has a BSE in Chemical Engineering from Princeton, and an MS and PhD in Energy Resources from UC Berkeley. Marshall's research focuses on air pollution and environmental justice. He has lived and worked in Barcelona, Berkeley, India, Jakarta, Malaga, Minneapolis, Seattle, Singapore, and Vancouver. His favorite Indian breakfasts are dosa and chow-chow bath.

## Deborah Havens, DO MPH

Deborah Havens decided in 6th grade that she wanted to be a doctor. An advisor along the way mentioned that once you hit medical school, your life will be totally focused on that topic for years. So in college she studied Classics and ESL, which provided opportunities to teach in China and initiated her love of travel and working in different cultures. After graduating, she attended medical school at Michigan State University. Upon completing her Internal Medicine residency in Detroit, she moved to Yakima, WA where she started in a traditional practice. She soon felt that preventing disease is as important or more important than simply treating people with illnesses; to that end, she decided to study public health. She finished her combined MPH and Occupational Environmental Medicine fellowship at UW in 2012. She saw this training as a fantastic opportunity to gather as many experiences as possible; she worked on water quality in Cambodia, pesticide exposures in Brunei, occupational hyperbaric exposures through OSHA, and lead contamination in Vietnam. Through this, she decided to focus on global environmental health and environmental remediation. She then lived in Malawi for 3 years, studying indoor air pollution and working on a PhD. She currently lives in Seattle. She enjoys mountain biking, hiking, and doing agility training with her German Shepherd.

## Kaylea Menon, MS

Kaylea completed her bachelors of science in chemical engineering and then worked for Medtronic, designing and manufacturing medical devices. She returned back home to University of Minnesota for her M.S. in environmental engineering. Through the Acara program at University of Minnesota, she visited India and did an internship designing ways to test water using smartphones. She started a social impact business in India, which provides portable water purifiers to marginalized communities. She currently lives and works in Bangalore, and is looking forward to working with the GCIL students this year!

## Priyanka Kalambettu, MS

Priyanka studied Biotechnology at Bangalore University (BS) and Flinders University, Australia (MS). She conducted genotype research at University of Adelaide, draught genetics research, and has extensive experience in molecular biology, plant physiology, and seed propagation. She currently lives in north Bangalore and has worked with Pure Paani.

Priyanka completed her B.S. from Bangalore University in Biotechnology. Aspiring to study abroad, she did her Masters in Biotechnology from Flinders University in Australia with a major in microRNA expression studies. With a keen interest in Environmental science combined with Gene expression analysis, she worked as a Technical Research officer in Salt tolerance in Wheat at the University of Adelaide. During her tenure, opportunities presented to widen her experiences focusing on drought genetics in wheat. Over the years, she created a large mapping population cloning and characterization of wheat genes and headed a project in Cereal Endophyte with New Zealand until 2021. Moving back to India, she worked with Pure Paani as a Research Assistant. Her passion and experience working with diverse students, has presented her to the GCIL program. Her hobbies include art like; Mandala drawings, playing Badminton, cooking and enjoys spending time with animals.

# Appendix 1. Strength-of-Idea Rubric

**Problem:**
1. What problem are you working on?
2. What evidence do you have that this is a problem?
3. Who faces this problem?
4. Why does this problem exist?

**Customer:**
1. Who is your customer/beneficiary?
2. Why do they face the problem?
3. What evidence do you have that they consider this issue to be a problem?
4. Why haven't they solved this problem themselves?

**Solution:**
1. What is your solution?
2. How will the solution help the problem? (social value proposition/theory of change)
3. What evidence do you have that the solution will help the problem?
4. How do you sustain yourself financially? (financial value proposition)

**Make it real:**
1. Do you have primary data?
2. Have you received outside feedback on your ideas? (prototype/ minimum viable product [MVP])
3. Do you have a clearly articulated plan for the next steps?
4. Do you have the right partners+team; have you identified who you would like to work with/bring into your team?

We will be asking these questions repeatedly throughout the quarter for evaluation, discussion, and grading and will use the following scoring system:
0=omitted or erroneous / too thin
1=answer given but weak, flawed, vague, incomplete, or otherwise problematic
2=totally believable answer

You can also think of these as "yet" / "not yet" grading. Initially, the answers to all 16 questions are "not yet" -- you have not yet explored or answered that question. Over time, your team should move all 16 categories from "not yet" to "yet", improving the depth and robustness of your answers.