

University of California, Irvine



Gamifying an Online Environmental Health Class

Janet DiVincenzo, M.A., PMP, CPLP

jdivince@uci.edu

Assistant Director, Online Learning

University of California, Irvine



An aerial photograph showing a wide river curving through a vast, dense green forest. The river is a light brownish-grey color, contrasting with the deep green of the surrounding trees. The forest appears to be a tropical or subtropical rainforest. The text is overlaid on the upper left portion of the image.

Public Health 60: Environmental Quality and Health

- Lower-division Public Health
- Fulfills General Education Science requirement
- Also attracts Public Health majors
- First time offered online
- Summer Session / 5 weeks
- Requires synchronous sections upon enrollment

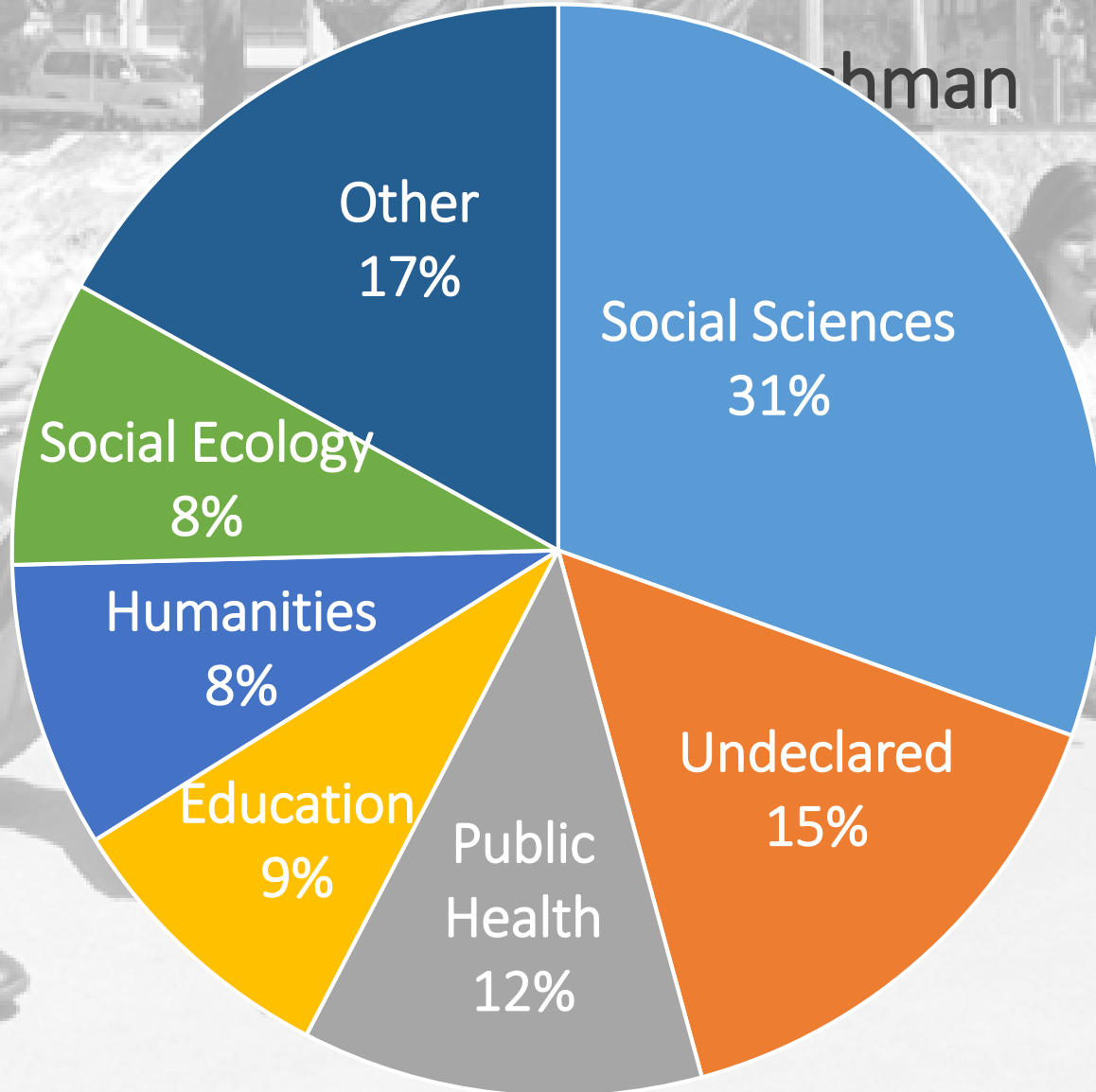
Dr. Miryha Runnerstrom

- Risk-taker
- Innovator
- Early adopter
- Tech-savvy
- Interested in pedagogy
- Popular instructor

“I don’t want
a canned
online class.”



60 Students Enrolled



Summer Session Challenges

- Students working
- Students on family vacations
- Students in other time zones
- Distractions!
- 5 weeks fly by



Our Goals

- Engage students at a high level
- Address a real-world problem related to the environment
- Get students involved in problem-solving as a group



CASE COLLECTION

- ▶ About the Collection
- ▶ Search the Collection
- ▶ Submit a Case
- ▶ Permitted Uses
- ▶ Answer Keys/Teaching Notes
- ▶ Subscription Payment
- ▶ Reset/Change Password/Email
- ▶ Classification Scheme
- ▶ Case Authors
- ▶ Back Catalog
- ▶ Other Case Collections

KEYWORD SEARCH

Our peer-reviewed collection
science and engineering.

or **Browse** by:

SEARCH



The Deforestation of the Amazon: A Case Study in Understanding Ecosystems and Their Value

by
Phil Camill
Department of Biology
Carleton College, Northfield, MN

Biological diversity is the key to the maintenance of the world as we know it.... Eliminate one species, and another increases to take its place. Eliminate a great many species, and the local ecosystem starts to decay.... How much force does it take to break the crucible of evolution?

—E.O. Wilson, *The Diversity of Life*

Introduction

In a crowded market in the Brazilian Amazon, a heated discussion develops between a farmer, a logger, and an environmentalist near the booth where the farmer is selling his crop.

“I just don’t know how I am going to pay for this fertilizer,” said Marco, a disgruntled peasant farmer growing beans in a cleared forest pasture. “This is only my second year of farming in the area, but already the crops are growing poorly, and it is hard to get rid of the weeds. They want \$300 per hectare for fertilizer and pesticides, but the land is not worth that much money. All I can



Fig. 1 The Market Place



Benefits of Role-Playing

- Engage students by having them “adopt” their character
- Provide real-world scenarios
- Require students to take a stand and advocate for their position
- But...cooperation works better than competition

1 2 3 4 5

- Scramble.
- Group organization
- Select topic
- Assigned to a group.
- Forum (in a group)
 - write a bio of their role as _____
- Lay out expectations
- They sign a contract.
- Quiz on syllabus + class focus.
- Prepare to meet next week or meet as a group?? (too much?)
- Stay in role throughout

- Confusion ▼
- Allay fears. Clarify.
- No false starts!
- Establish their investment.
- Group must meet:
 - establish their outcomes that they report on
 - forum post
 - turn in something
- Embody their role!
- Key players/stakeholders
- What's at stake?

- Early thinking
- Calm. Settled.
- Invested.
- Groups
 - next steps
 - approaches to resolve the case:
 - govt corruption
 - funding / - policy
 - idea generation
 - risk assessment
 - go beyond the textbook
 - Google Scholar
 - Guest speaker?

- Overwhelmed, maybe.
- Reassure them.
- Curve ball? (leads to A-ha! moment)
- How bad is this?
- Characterize:
 - hazards / risks
 - impact
 - social cost
- Whoa. What's really at stake?
- What makes this SO HARD?!
- What's the value of X?
- What's the value of the rain-forest?

- They get it!
- Strength of evidence?
- Amount of uncertainty!
- Political decision-making!
- Expert witnesses
- What are the real options?
- Ethical implications of inaction
- Costs of doing nothing
- Denyers' role
- Internet "experts"
- This is SLOW
- Mom Blogs
- Political machine!
- Reality check!

- End on an up note
- What's their individual role?
- Personal Plan of Action
- UCDC
- Study Abroad
- Ameri Corps
- Peace Corps
- Volunteer Work
- TFA
- Run for office
- One possible succinct solution
- Δ is possible!

Hypothesis

Scientific Evidence

Modeling Risk Assessment

Decision-Making Process

Plan Policy

streamline

Challenges of Our Design

Challenges for Us

- Time-consuming
- Choreography
- Unengaged students
- Variety of student backgrounds

Challenges for Students

- Role Playing / Embodying a character
- Group work
- “All in”
- Stragglers and lurkers unwelcome

Choreography

- Role playing
- Google templates
- Agendas for each group meeting
- Rubrics
- Highly graphical elements throughout



A Week in the Life of PH60





ENVIRONMENTAL QUALITY AND HEALTH

SYLLABUS

GET STARTED

FINALS

WEEK

1

WEEK

2

WEEK

3

WEEK

4

WEEK

5

**NOT LIKE ANY CLASS YOU'VE
EVER HAD BEFORE**



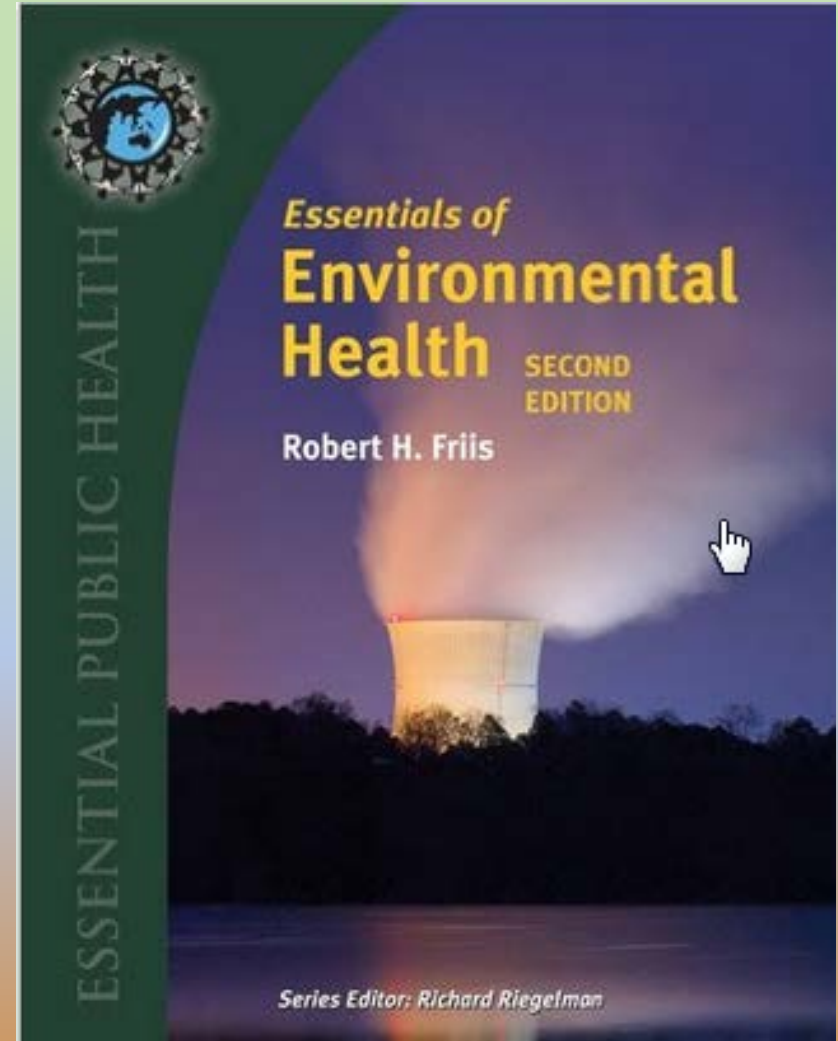
View Lecture-ettes + Do the Reading



ENVIRONMENTAL POLICY AND REGULATION

PH60 - Environmental Quality and Health

Instructor: Miryha Gould Runnerstrom, Ph.D.



Go Through the Interactive Lesson

In this class, you will be assigned a role to play. It's important to get to know your character so that you can embody them and advocate for their point of view. Below are the characters who appear in the case study. **Click on each one to learn more.**

<https://s3-us-west-1.amazonaws.com/ph60/New+Introduction+/story.html>



Marco

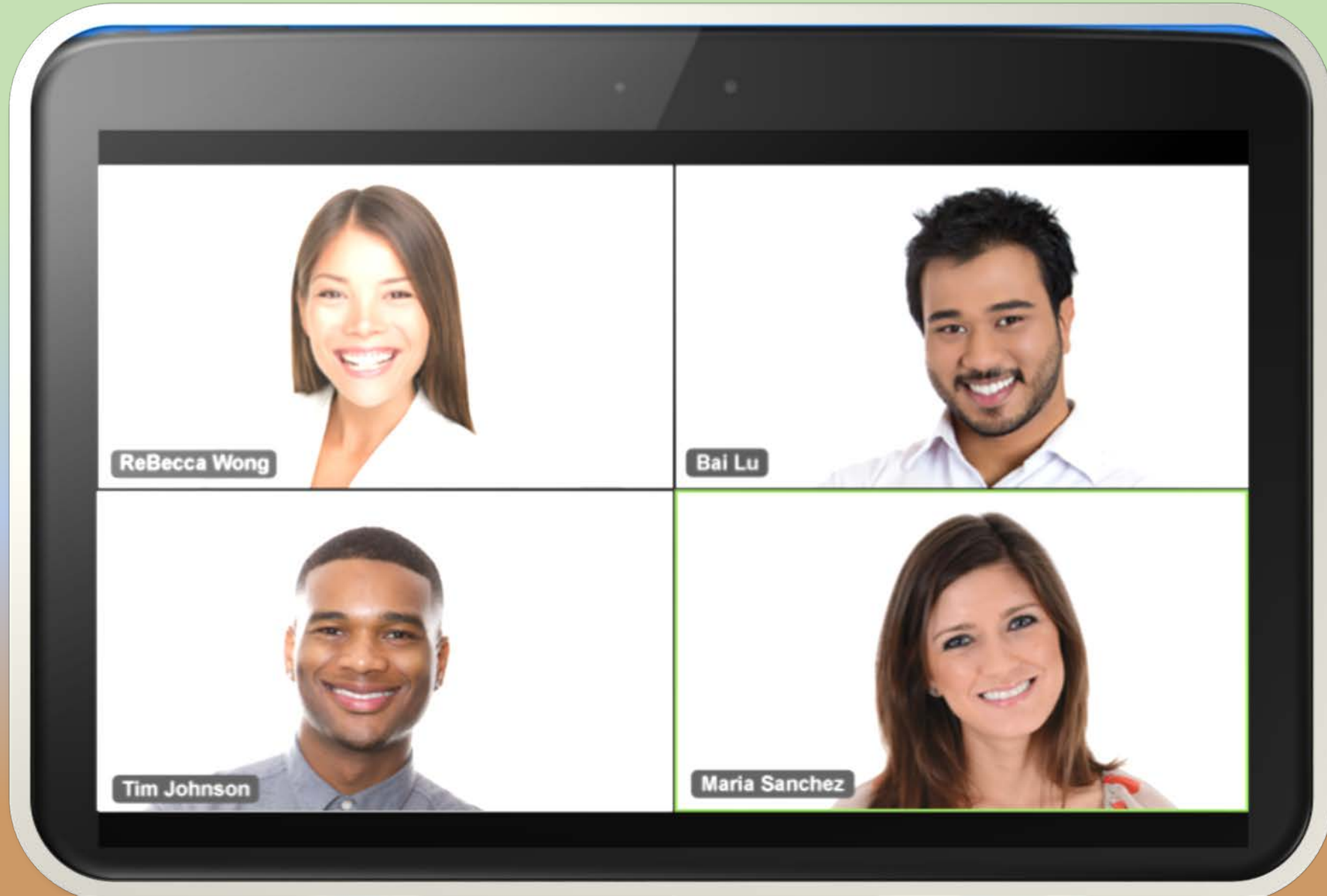
Antonio

Carolina


Rachel

Maria

Meet Synchronously in Your Group



Follow the Agenda



ENVIRONMENTAL QUALITY AND HEALTH

Discussion Section Agenda for Week 1

Before the meeting: Consult the Road Map for Week 1 and follow the instructions there

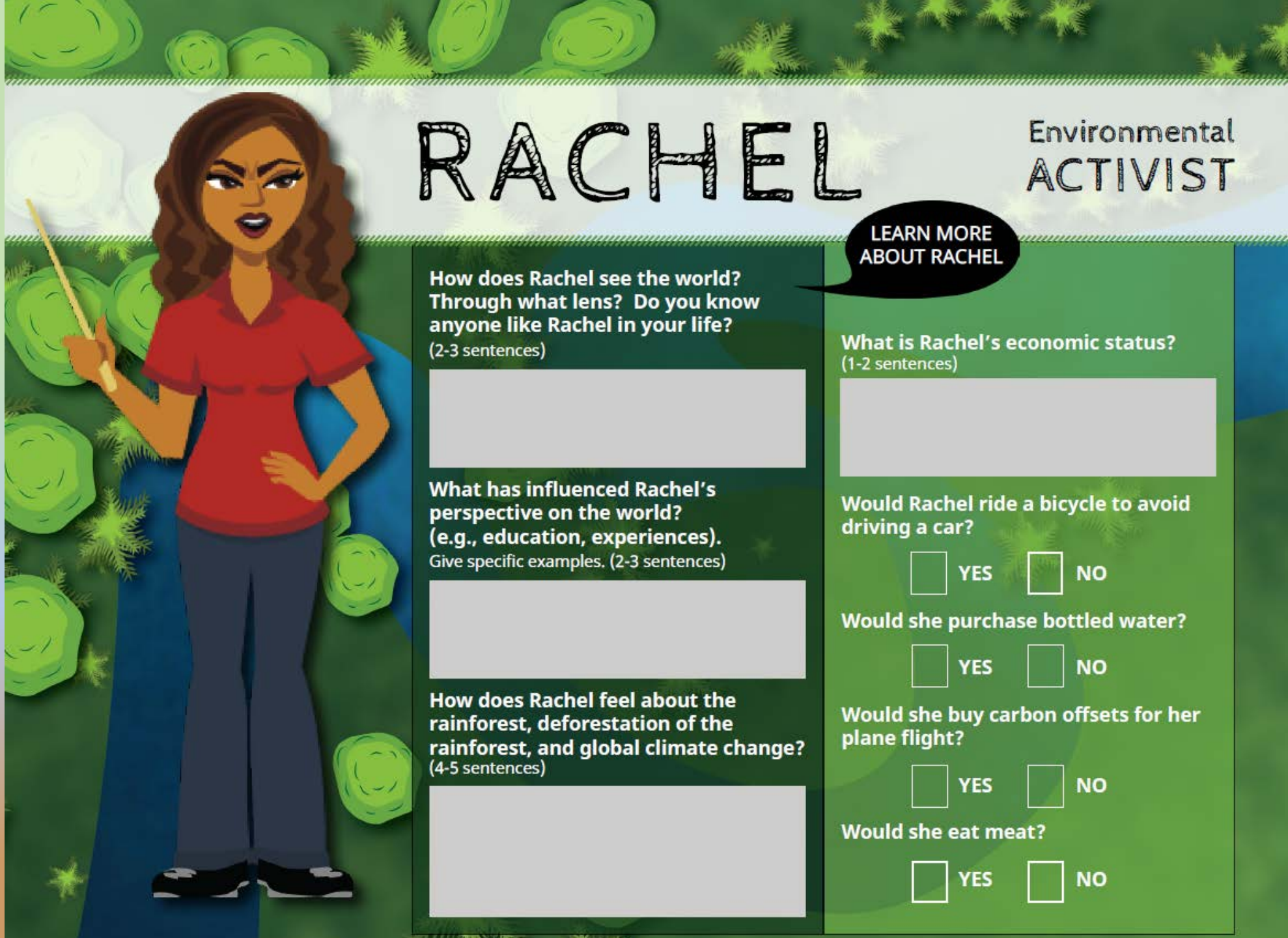
During the meeting: Follow this agenda here:

1. Introduce yourselves
 - Name
 - Major
 - Class year
 - What is your favorite food and why?
2. Talk about your roles
 - What role will you be playing throughout the case?
 - What perspective does your character have about the case?
 - What can your character add to your team's discussion of rainforest deforestation?
3. What is your understanding of the case study so far?
 - What do you know for sure?
 - What are you unclear about?
4. What problem are you trying to solve in this class (as described in the case study)?
 - Why is this problem relevant from a public health perspective?
 - How is this problem related to environmental quality and health?

Continue Group Discussions Online



Do Assignment



RACHEL

Environmental ACTIVIST

LEARN MORE
ABOUT RACHEL

**How does Rachel see the world?
Through what lens? Do you know
anyone like Rachel in your life?**

(2-3 sentences)

**What has influenced Rachel's
perspective on the world?
(e.g., education, experiences).**

Give specific examples. (2-3 sentences)

**How does Rachel feel about the
rainforest, deforestation of the
rainforest, and global climate change?**

(4-5 sentences)

What is Rachel's economic status?

(1-2 sentences)

**Would Rachel ride a bicycle to avoid
driving a car?**

YES NO

Would she purchase bottled water?

YES NO

**Would she buy carbon offsets for her
plane flight?**

YES NO

Would she eat meat?

YES NO

Wish us luck!

Questions?

jdivince@uci.edu