ILO-2. Irrigating using the Irrigania Game

Learning Objectives:

d. Use Irrigania to quantitatively and programmatically analyze natural resources management problems.

d3. Apply principles of game theory and decide how much water to use to irrigate from different sources.

g. Present work and findings in a variety of formats required of practicing natural resources managers, including written reports.

i. Work effectively individually.

What economic status and balance did you accumulate while playing the two Irrigania games? In each game, what strategy did you use to decide how many fields to irrigate with groundwater, river water, and to leave as rain fed? What was the rationale for your strategy? What insights did you gain about cooperation and conflict by playing the games and what action(s) do you recommend actual farmers take (who are in a situation like in Irrigania)?

CEE 6490, ILO-2 **DUE: Feb 2, 2016**

Directions to Play the Irrigania Game

1. Open your browser to http://www.irrigania.ch/Default.aspx, select *Student*, and click **OK.**

Game 1: Warm Up Game

This game will have normal hydrology, each player will know who the other members in their village are but will not know how each other village member irrigated their fields in each round.

2. In the next screen, enter the **Teacher Name** as *rosenberg*, **VillageCluster Name** as *Game_1*, and **Village Name** and **Farmer Name** that we assigned to you. Click **Login**.

3. On the next screen for year 1, enter your farming decisions as the number of fields to irrigate by each water source (you have 10 total fields). You can also review your Economical status, Current Hydrological conditions, the activities of other villages and farmers, and talk to other farmers in your village. Click **Submit**. BE FAST: YOU HAVE 3 MINUTES TO ENTER YOUR DECISIONS FOR THIS FIRST YEAR.

4. Once everyone has entered their farming decisions, we proceed to the second year where you can enter new farming decisions, review your economic status, and see the activities of other famers and villages in the prior year. You have 3 minutes to enter your decision in this second year.

5. The game continues for 8 rounds (years). You have 3 minutes to enter your decision in each subsequent year.

QUESTIONS to answer after playing the Warm Up Game

- What information did you have at each round and how did you use that information?

- What strategy did you adopt and why?
- How did you interact with the other players? Did players make agreements? If yes, what were the agreements and what happened if one or more parties violated an agreement?
- What was the outcome of your strategy?
- How would you change your strategy if you played this game again?

Game 2. Playing with Additional Information

In this second game, there will be normal hydrology, each player will know the other members of their village, and be able to see how each village member irrigates their fields in each round.

1. Proceed as in Steps #2-5 for Game 1, but in step #2 enter the **VillageCluster Name** as *Game_2*.

BE FAST: YOU HAVE 3 MINUTES TIME TO ENTER YOUR DECISIONS FOR EACH YEAR.

QUESTIONS to answer after playing the game with additional information.

- What changed in this game?
- Answer the same questions you did for Game #1.

Game 3. Randomly varying hydrology (to play in the two days after class)

In this game, the available river water will vary randomly each round, each player will know the other members of their village but not know what each village member decides each round.

1. Proceed as in Steps #2-5 for Game 1, but in step #2 enter the **VillageCluster Name** as *Game_3*. Additionally, enter the **Village Name** and **Farmer Name** we assign to you

QUESTIONS to answer after playing the Randomly varying hydrology game.

- What changed in this game?
- Answer the same questions you did for Game #1.

CEE 6490, ILO-2 Grading Rubric Student: _____

Category (Max. Score)	No Evidence	Doesn't Meet Standard	Nearly Meets Standard	Meets Standard	Exceeds Standard	Self-Score	Instructor Score
Title (1)	Absent 0	Evidence of two or less 0	Evidence of three 0	Evidence of four 1	Title – can assess main point from title alone; Name, Instructor's Name, Course, Date, Neatly finished 1		
Introduction (3)	Absent, no evidence 0	There is no clear introduction or main topic. 1	Introduction states the main topic but either: 1. Does not give a full overview, Or: 2. Too detailed, leading to annoying repetition later. 2	The introduction states the main topic and previews the structure of the report. 2	The introduction states the main topic and previews the report structure. Overviews the design and strategy. An effective summary. Gives enough detail to interest the reader. 3		
Organization and structural development of the idea: procedure, results, discussion (10)	No content provided. 0	Paragraphs fail to develop the main idea. No section headers or guide to help the reader understand how material is organized. 1 – 5	Organization of ideas not fully developed. Paragraphs lack supporting detail sentences. No transitions. 6 - 7	Paragraph development present but not perfected. Each paragraph has sufficient supporting detail sentences. Few transitions. 8	Writer demonstrates logic and sequencing of ideas through well-developed section headers, paragraphs, and transitions. The first sentence of each paragraph is the summary sentence. 9 - 10		
Engineering Calculations and Design (70)	Design point(s) not addressed. 3 – 42%	The writer has no clue what they are talking about. 45 – 58%	Sketchy: left out required design points. Did not work on this as much as you should have, and it shows. Many important answers are incorrect. 61 – 79%	Discussion lacks adequate detail, but all the necessary points are covered and nearly all answers are correct. 82 – 88%	Provides what was explicitly asked for. The function of each piece is demonstrated to the reader in adequate, but not overwhelming, detail. Answers are correct and reasonable. 91 – 100%	[redacted]	
	a) Economic statuses and balances accumulated while playing each of the 3 games (7)						
	b) Description of irrigation strategy used in each game (20)						
	c) Answers to post-game questions (18)						
	d) Insights gained by playing the games and recommendation(s) to farmers (25)						

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Category (Max. Score)	No Evidence	Doesn't Meet Standard	Nearly Meets Standard	Meets Standard	Exceeds Standard	Self-Score	Instructor Score
Word Usage and Format (10)	Not applicable	Numerous and distracting errors in punctuation, capitalization, spelling, sentence structure, word usage, significant figures, tables, and figures. Data vomited onto page(s). Unacceptable / unprofessional at the graduate level. 1 – 5	Misspelled words, poor English grammar and word choice. Main body of report is either longer or significantly less than one page. Figures are too small and/or under-labeled, although they are usually of acceptable quality and focus. Tables incoherent or not cohesive. Bad font sizes. Too much or too little data in appendices. Could be improved by being more meticulous. 6 – 7	Almost no errors in punctuation, capitalization, spelling, sentence structure, word usage, significant figures, and presentation of figures, tables, and appendices. Main body of report is one page or less 8	Punctuation, capitalization, spelling, sentence structure, word usage, and significant figures all correct. Main body of report is one page or less. Clear, consistent fonts. Good word processing skills. Figures have adequate contrast. Informative figure and table titles and legends. Figures have appropriate axis tick spacing, labels, units, and legends. Table columns cohesive, labeled, and specify units. Document is stapled. Appendices, if provided, are separated by topic, and each have a title, discussion, and proper formatting and display of information 9 - 10		
Conclusion (4)	Absent 0	Incomplete and/or not focused. 1	The conclusion does not adequately restate the main results. 2	The conclusion restates the main results. 3	The conclusion restates the main results, and is an effective summary. 4		
References (2)	Absent 0	With many errors, off-the-wall sources used. 0	With some errors, appropriate sources were used. 1	With few errors, good sources were used 2	All cited works; text, visual, and data sources are done in the correct format with no errors. Uses innovative sources of information. 2		
TOTAL (100)							