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Great Problems Seminar

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Global Problems, Big Projects, and First Year Students: A Potent Mix! Teaching Portfolio

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Teaching Portfolio

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Worcester Polytechnic Institute
Worcester, Massachusetts

Contents:

November 2015

SAMPLE SYLLABUS #1

FY1100 Great Problems Seminar: Livable Cities
Worcester Polytechnic Institute
Course Syllabus - A and B terms

1. Instructor Information
2. Information about Course Support Staff
3. Course Goals and Learning Objectives

This Great Problems Seminar addresses the possibilities and liabilities of human life in the urban environment. Urban conditions can pose many threats to the environment and people, and we will examine ecological conditions (e.g., land use, pollution, heat island), patterns (e.g., changes in diversity), and processes (e.g., invasion of non-native species) associated with urbanization while developing an understanding of historical global and local urban trends (e.g., Levittowns, urban village community). Students will investigate the role of the emerging fields of new and ecological urbanism as a way to increase sustainability and restore natural environments in urban settings. Additionally, students will develop an area of expertise in one problem of urban living and research, present, and propose sustainable solutions.

In this class, students will work to accomplish the following:
a.   Identify urban ecological and humanistic issues of local, regional, and global importance
b.   Describe opportunities and risks associated with urban environments
c.   Critically analyze, interpret, and evaluate the complexities of ecological issues.
d.   Know the key stakeholders in urban issues including scientists, political leaders, business leaders, government officials, philanthropists, and citizens.

Learning Objectives (Student Learning Outcomes)

Through our work together, we will meet the following learning objectives of the Great Problems Seminar. Students will
a. Collaborate effectively on a team and work individually,
b. Find sources, assess their relevance, and evaluate their claims,
c. Produce clear, effective, evidence-based writing,
d. Prepare and deliver engaging and effective presentations,
e. When confronted with complex, open-ended problems, be able to identify answerable questions, and select and evaluate suitable solutions,
f. Use awareness of the differences in experiences of the "great problem" by peoples from different cultures/regions/economic status in guiding the problem solving process,
g. Describe your values and those of others as they relate to addressing the great problem.

4. Required Course Materials (for A term)

1. Beisner, B., C. Messier, and L-A. Giraldeau. 2013. *Nature All Around Us: A Guide to Urban Ecology.* University of Chicago Press. Chicago, Illinois, USA.
2. Charles Montgomery, *Happy City.* Farrar, Straus and Giroux.
3. LeGates, R, and Stout, F. *The City Reader* 5th ed. Routledge. New York.
4. Adler, F., and C. Tanner. 2013. *Urban Ecosystems: Ecological Principles for the Built Environment.* Cambridge University Press. New York, New York, USA.
5. Supplemental readings will be available through the WPI library or posted on the course page found on MyWPI or distributed in class

5. Tentative Course Schedule (for A term)

Session 1 (8/28) Introduction
> Readings: "Urban ecosystems and the science of ecology" (CH 1 in *Urban Ecosystems* by Adler and Tanner)
> Assignment 1: Reflective writing: Cities I Have Known (due 9/4)
> Assignment 2: Movie Reflection (due 10/9)

Session 2 (9/1) Urban theory: What counts as a city? How have people thought about good city design before us?
> Readings: Chapters 2 & 4 in *Happy City*
> from *The City Reader*: readings by Le Corbusier, Howard, F. L. Wright, J. Jacobs, "Charter of New Urbanism"
> Assignments 3 and 4: City to City Profile assignments (Due 9/8)

Session 3 (9/4) Library Visit / The urban environment
> Assignment 1 due (Reflective writing)
> Readings: Introduction + CH 1 & 2 in *Nature All Around Us: A Guide to Urban Ecology*
> "Urban accounting: metabolism, energy, and the ecological footprint" (CH 2 in *Urban Ecosystems* by Adler and Tanner)
> Assignment 5: Urban Ecosystem Services assignment (due 9/11)

Session 4 (9/8) City-to-City Group Presentations
> Assignments 3 and 4 due (City to City profile assignments)
> Readings: chapters 1, 5, 10 in *Happy City*
> CH 18 & 22 in *Nature All Around Us: A Guide to Urban Ecology*
> Assignment 6: Individual interview question assignment (due 9/11)

Session 5 (9/11) ATC Visit / Urban environment cont.
> Assignment 5 due (Urban ecosystem services)
> Assignment 6 due (Interview questions)
> Readings: Pages 74-103 in "Urban ecosystem processes" (CH 3 in *Urban Ecosystems* by Adler and Tanner)
> from Blackboard: Light, "Urban Ecological Citizenship"

Assignment 7: Video interview assignment (Due 9/18)

Session 6 (9/15) City People: Neighbors, Strangers, and Differences
    Readings: (on Blackboard)
    Addams, "The Subjective Necessity of the Social Settlement,"
    Waldron, "Who is my Neighbor? Proximity and Humanity"
    Sennett, "A Flexible City of Strangers"
    Park, "Human Ecology"
    Assignment 8: Argumentative paper defending a thesis based on your reflections from above
     readings (due 9/22)

Session 7 (9/18) Species diversity and urbanization
    Assignment 7 due (Interview video)
    Readings: CH 3, 4, and 20 in *Nature All Around Us: A Guide to Urban Ecology*
    Pages 139-155, 161-172, and 186-191 in "The ecology of urban organisms" (CH 4 in *Urban
    Ecosystems* by Adler and Tanner)
    from *The City Reader:* Olmstead reading
    Assignment 9: Urban Park Inventory (due 9/25)

Session 8 (9/22) Social Life in the City
    Assignment 8 due (Argumentative paper)
    Readings: From *Happy City:* chapters 3, 6 & 7
    From Blackboard: Oldenburg, *The Great Good Place* chapters 1 & 2
    from *The City Reader*; readings by Putnam and Florida

Session 9 (9/25) Urban green spaces and human health
    Readings: CH 19 and 25 in *Nature All Around Us: A Guide to Urban Ecology*
    Pages 191-202 in "The ecology of urban organisms" (CH 4 in *Urban Ecosystems* by Adler and
    Tanner)
    On Blackboard: "Urban ecology and human health and wellbeing" (CH 9, pages 202-229 in
    Urban Ecology by Gaston)
    Pongsiri et al., "Biodiversity loss affects global disease ecology"
    Assignment 10: Project Pitch (due 10/06)
Session 10 (9/29): Urban Park Inventory Presentations
    Assignment 9 due (Urban Park Inventory assignment)
    Readings: CH 21 and 23 in *Nature All Around Us: A Guide to Urban Ecology*
    Assignment: Proposal (Due 10/14)

Session 11 (10/2) Guest lecture/ Community Partners / Project ideas brainstorming
    Readings: "Implications of urban ecology" (CH 5 in *Urban Ecosystems* by Adler and Tanner)

Session 12 (10/6) Project Pitch day (Pitch two project ideas to class and receive class feedback)
      Assignment 10 due (Project Pitch)

Session 13 (10/9) Data collection methods / Work day
      Assignment 2 due (Movie reflection)
      Readings: On Blackboard: Pages 110-120 in *Research Design* by J. Creswell

Session 14 (10/13) Project Proposal due and Presentations

IMPORTANT NOTE: The above schedule, policies, procedures, and assignments in this course are subject to change. Professors Eddy and Bakermans reserve the right to make changes to the Course Syllabus throughout the term.

6. Teaching Methodology

7. Grading Policy/Summary
1. Assignments (10 total)- 50% (5% for each assignment)
2. Written Project Proposal- 15%
3. Project proposal presentation- 10%
4. Attendance and Participation- 10%
5. Reading assessment activities - 5%
6. Discussion Board- 10%

8. Course Policies / Student Responsibilities

B term Information
Required Course Materials
Wolfe, J. 2010. Team Writing: A guide to working in groups. Bedford. Boston, MA.
Also, you will be required to read pages 3 - 63 in the following book during the break between terms. We expect that you have read this by the first day of class on Wednesday, Oct. 28th.
Speck, J. 2012. Walkable City: How Downtown can Save America, One Step at a Time. North Point Press, New York, NY.

Tentative Schedule

Session 1 (W 10-28) Discussion of book, *Walkable City*
      Readings: *Walkable City* by J. Speck, plus watch TED talk
      Assignment 1: Walkable City reflection (due 11/4)
      Assignment 2: Revised proposal (due 11/9)
      Research Notebook: Research Notebook Entry #1 (due 11/2)

Session 2 (M 11-2) Teamwork / group problem solving
    Research Notebook Entry #1 due
    Readings: CHs 1 and 3 in *Team Writing* book
    Understanding Teams (CH 1) and Team Beginnings (Chap 3) on myWPI
    Assignment 3: Contact assignment (due 11/16)

Session 3 (W 11-4) Case study (Curitiba case study) / team consultations / readings
    Assignment 1 due (Walkable City reflection)
    Readings: Chapter 2: Curitiba in *Hope, Human and Wild* by Bill McKibben
    CHs 2 & 4 in *Team Writing*
    Assignment 4: Solution and presentation (due 11/16)

Session 4 (M 11-9) Library work / work day
    Assignment 2 due (Revised proposal)
    Research Notebook entry #2 due
    Readings: CH 8 in *Team Writing*
    CH 11 (Problem Solving) on myWPI

Session 5 (W 11-11) Case study Baltimore / work day
    Readings: Jelani Cobb, "City Life," from *The New Yorker*
    Emily Badger, "The Long, Painful and Repetitive History of How Baltimore became Baltimore,"
    Washington Post April 29, 2014
    Danielle Allen, "Why the dispossessed riot," *Washington Post* April 30, 2014

Session 6 (M 11-16) Project Solution Presentations
    Assignment 3 due (Contact assignment)
    Assignment 4 due (Solution and presentation)
    Research Notebook entry #3 due
    Readings: CHs 5 & 6 in *Team Writing*
    Assignment 5: Project Progress Presentation (due 11/23)

Session 7 (W 11-18) Eco-design
    Readings: CH 1 (A New Foundation: Darwin, Biology, and Cognitive Science) from *Cognitive*
    Architecture book (on myWPI)
    Woolliams, Designing Cities and Buildings as if They Were Ethical Choices(myWPI)
    CH 2 Making space for biodiversity in urban areas in Green City Guidelines (myWPI)
    Assignment 6: Quest assignment (due 12-9)

Session 8 (M 11-23) Project Progress Presentation
    Assignment 5 due: Group Progress Presentation
    Research Notebook entry #4 due
    Readings: CH 7 from *Team Writing* book

(W 11-25) No class, Thanksgiving break

Session 9 (M 11-30) ATC presentation about posters / team time
        Research Notebook entry #5 due
        Assignment 7: Poster draft (due 12/8)

Session 10 (W 12-2) Quest

Session 11 (M 12-7) Present Draft Poster
        Research Notebook entry #6 due
        Assignment 7 due (Present poster draft to class)
        Assignment 8: Statement of Learning (due 12/17)
        Assignment: Final Report (due 12/17)

Session 12 (W 12-9) Poster Practice Session
        Assignment 6 due (Written portion of the Quest assignment)

(F 12-11) Submit final poster to ATC by noon

Session 13 (M 12-14) Poster Session - 10am - Noon in Campus Center (this replaces class time on this day)

Session 14 (W 12-16) Feedback session / Quest presentations
        Research Notebook #7 due
        Assignment 8 due (Statement of Learning)
        Assignment due (Final Report)

IMPORTANT NOTE: The above schedule, policies, procedures, and assignments in this course are subject to change. Professors Eddy and Bakermans reserve the right to make changes to the Course Syllabus throughout the term.

Grading Policy/Summary
1. Poster and poster presentation (at end of term)– 15%
2. Written report – 15%
3. Revised proposal (i.e., Assignment 2) – 10%
4. Solution proposal (i.e., Assignment 4)– 10%
5. Research notebook (7 entries)– 15%
6. Other Assignments (Assignments 1, 3, 5-8) – 25%
7. Attendance and participation – 10%

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SAMPLE SYLLABUS #2

FY1100 Great Problems Seminar: The World's Water
Worcester Polytechnic Institute
Course Syllabus - A and B terms

1. Instructor Information

2. Information about Course Support Staff

3. Course Goals and Learning Objectives

We are in the midst of a global water crisis. The quantity of freshwater on earth is declining, and much of the freshwater that is available is threatened by pollution. With a changing climate and growing global population, the rising global demand for water has led to higher water costs. This has made the global water crisis an issue of affordability for some. Others lack access to water due to absent or failing water infrastructure due to poverty, mismanagement, and/or devastating wars. This class examines the depth and breadth of these water issues from technical, ethical, political, economic, social, and ecological perspectives. Understanding the diversity and complexity of water issues is the key to becoming effective engineers and effective global citizens of the 21st century.

In this class, students will work to accomplish the following:
a. Identify and critically analyze local, regional, and global water problems
b. Identify and analyze established and innovative water technologies
c. Identify and analyze different approaches to solving water problems via water governance, market-based solutions, and technological-based solutions.
d. Identify and critically analyze your own role as a water user, polluter, and sustainer; and examine your ability to make positive changes as an individual and as an engineer.
e. Identify and critically analyze the key stakeholders involved in water, including citizens, business owners, policy makers, non-profit organizations, scientists, plants, and animals.

Learning Objectives (Student Learning Outcomes)

While water is the content focus on this Great Problem Seminar, our learning objectives are as follows:
1. TEAM WORK: Collaborate effectively on a team
2. RESEARCH: Find a diversity of credible sources, assess their claims and relevance, and use them appropriately
3. WRITING: Produce clear, effective, evidence-based writing
4. PRESENTING: Prepare and confidently deliver engaging and effective presentations
5. APPROACH TO PROBLEMS: When working on complex, open-ended problems, be able to identify answerable questions, and select and evaluate suitable solutions through the application of multiple perspectives and disciplines.

6. CULTURAL AWARENESS: Articulate the differences in experiences of the "great problem" for various stakeholders. This is essential to the development and acceptance of the proposed solution.

7. VALUES: Describe your values and those of others as they relate to addressing the great problem.

4. Information on Readings and Required Course Materials

Required Course Textbooks

1. Wolfe, Joanna. 2010. *Team Writing: a Guide to Working in Groups*. Boston: Bedford/St. Martin's. You can find this at the bookstore, on Amazon for $18 (used are cheaper), and it is available at the library on reserve.
2. The rest of the texts for the class will be available on our MyWPI page.

5. Teaching Methodology

This course is hands-on and application oriented. By its design, you will have the opportunity to explore, clarify, and strengthen your problem solving skills and group interpersonal dynamics. Please be aware that it is expected that you will experience a certain level of ambiguity and, perhaps, even a feeling of being overwhelmed at times in this Great Problem Seminar. You will be expected to deal with the ambiguity and explore different ideas without knowing the answers. This, according to poet and environmental activist Wendell Berry, is when we get *real work* done -- when we struggle to find answers. Challenges and frustration can lead to innovation and discovery.

This course will be presented through a combination of articles, structured group discussions and activities, self-reflection assignments, and group presentations and projects. Please be aware that it is strongly expected that each student will invest a minimum average of 12 hours per week engaged in outside work for this GPS course. This is consistent with the standard of working three hours outside of class for every one hour of classroom time. You will need to work in groups, so you must make yourself available to your group members outside of the scheduled classroom time. To be successful in this GPS course, you must use effective time management and planning tools.

6. Grading Summary
1. Controversial Water Use Essay (5%)
2. Personal Water Use Log Part and Analysis (10%)
3. Water Infrastructure Micro Project Presentation (10%)
4. Annotated Bibliographies for Three Projects (15%)
5. Two Peer Review Assignments (10%)
6. Water Problems Micro Project Presentation (15%)
7. Water Ethics Documentary Reflection (5%)

8. Problem Proposal Presentation (15%)
9. Problem Proposal (15%)

7. Course Schedule

The schedule is subject to change. Our MyWPI page will have the most up to date daily assignments, readings, and announcements. Students will submit assignments via MyWPI. The specific time and date each assignment is due will be noted on MyWPI under the "Daily Course Schedule".

Course Schedule

Date	Topic	Readings/Assignments DUE
Session 1: What is water security?		
Thurs 8/27	1. Course Introduction 2. Water security and Sustainability	None
Session 2 & 3: Where does our water come from and where does it go?		
Mon 8/31	1. Team Collaboration Methods 2. Research workshop 3. Tutorial on presenting projects	1. Wolfe, 2010, Ch. 1 Planning Your Collaboration, in Team Writing: a Guide to Working in Groups **2. Controversial Water Use Essay due**
Thurs 9/3	1. Students present Water Infrastructure Micro Projects in class 2. Water Sources and Ecosystems	**1. Annotated Bibliographies from Water Infrastructure Project Due Wednesday, 9/2 by 11pm** **2. Water Infrastructure Micro Projects due in class.**
Session 4: How do we use water, and why is water scarce?		
Mon 9/7	**No class**	1. Read Wolfe, 2010, Ch. 1,2, and 3 in Team Writing: a Guide to Working in Groups **2. Team Charter, Task Schedule and Team manager Due Tuesday 9/8 by 11pm.** *Use instructions from chapters 1,2, and 3 to choose a team manager and to construct a team charter and task schedule.*
Thurs 9/10	1. Types of water scarcity 2. Water Taste Test 3. Discuss personal water use logs	1. Read Robbins et al, 2010, Chapter 13: "Bottled Water" in *Environment and Society: a Critical Introduction*. Chapter is available on our MyWPI page.

		2. Read Feldman, 2012, Chapter 4, Section: "The Bottled Water Fetish": pages 109-115 ONLY in *Water*. Chapter is available on our MyWPI page. 3. **Personal Water Use Log. Due Wednesday, 9/9 by 11pm.**

Session 5 & 6: How do we use water, and why is water scarce?		
Mon 9/14	1. Water scarcity and climate change 2. **Water Problems Micro Projects for ½ the class**	1. Readings TBA (will be posted on MyWPI) 2. **Water Problems Micro Projects for 1/2 of class.** 3. **Annotated bibliographies for those teams due Sunday, 9/13, by 11pm.**
Thurs 9/17	1. Water, food, energy nexus 2. **Water Problems Micro Projects for ½ the class**	1. Readings TBA (will be posted on MyWPI) 2. **Water Problems Micro Projects for 1/2 of class.** 3. **Annotated bibliographies for those teams due Wednesday, 9/16, by 11pm.**

Sessions 7&8: How do we use water, and why is water scarce?		
Mon 9/21	1. Water conflicts, ethics, and environmental justice 2. Ethical case study in class	1. Readings TBA (will be posted on MyWPI) 2. **Personal Water Use Log Analysis. Due Sunday, 9/20 by 11pm.**
Thus 9/24	1. Water pollution and Environmental justice 2. Visit to Coe's Pond	1. Documentary TBA (will be posted on MyWPI) 2. **Water Ethics Documentary Reflection. Due Wednesday, 9/23 by 11pm.**

Sessions 9&10: How is water managed?		
Mon 9/28	Water equity and water governance	Readings TBA (will be posted on MyWPI)
Thurs 10/1	1. Group Project Selection 2. Diagramming successful project proposals 3. Visit from project sponsors	Read and evaluate previous problem proposal (will be posted on MyWPI)

Sessions 11&12: Group Project Selection and Work Day		
Mon 10/5	1. Library Session 2. Work Day	1. **Use instructions from chapters 1,2, and 3 to choose a team manager and to construct a team charter and task schedule. Team Charter and Task Schedule and Team manager Due Sunday 10/4 by 11pm** 2. Work on first draft of Problem Proposal

Thurs 10/8	Work Day	1. Problem Proposal first draft due Friday, 10/9, at 11pm. 2. Annotated bibliographies for Problem proposal first draft due Friday, 10/9, by 11:59pm.
Sessions 13&14: Work Day and Project Problem Proposal Presentations		
Mon 10/12	1. Peer Discussion of Problem Proposal Peer Reviews 2. Group Discussion of Problem Proposal Peer Reviews	1. **Peer review due Sunday, 10/11, by 11pm** 2. Wolfe, 2010, Ch. 6 Revising with Others, in Team Writing: a Guide to Working in Groups
Thurs 10/15	**Project Problem Proposal Presentations**	1. **Project Proposal Presentations due in class.** 2. **Project Proposals due Friday, 10/16, by 11pm.**

B Term

Date	Topic	Readings/Assignments DUE
Sessions 1&2: Introduction to B term & Market and Policy Based Solutions to Water Problems		
Tues 10/27	1) Introduction to B Term 2) Go over assignments due 3) Market based solutions to water problems	None
Fri 10/30	1) Policy solutions to water problems 2) Project goals and objectives (SMART goals) 3) Workshop on Interviews	**Interview Contact Assignment PART 1 due Thursday,10/29, by 11pm:** List of three potential interview participants, with a rationale of why an interview with them will benefit your project. Speculate about how they might help you think about the problem or potential solutions? SPONSORS DO NOT COUNT. Post list and rationale to MyWPI. **Problem and Goal Statement Assignment due Thursday 10/29 by 11pm** **Second Interview Contact Assignment PART 2:** Based on our feedback, send an introductory email to two people your group would like to interview. You must cc Prof. Stoddard and Rosbach on the emails in order to get credit for the assignment. Send by 11pm on Friday, 10/30. A sample email has been

		posted to "Course Resources" on our MyWPI page.
Sessions 3&4: Technology Presentations, Data collection and Analysis	
Tues 11/3	**Technology and Policy Solutions Presentations**	**Research Notebook Entry #1 due Sunday, 11/1, by 11pm** **Technology and Policy Solutions Presentations due in class**
Fri 11/6	1) Workshop on data collection and analysis 2) Final Report Expectations 3) Peer review of interview questions and revise questions as a team.	**First draft of interview questions due in class**
Sessions 5&6: Project Progress and Team Conflict	
Tues 11/10	**Progress Presentations**	**Final draft of interview questions due Monday, 11/9, by 11pm** **Progress Presentations due in class** **Research Notebook Entry #2 due Wednesday, 11/11, by 11pm**
Fri 11/13	1) Workshop on team conflict with Charlie Morse 2) Workshop on data and interview analysis with Prof. Ingrid Shockey	**Read chapter on team conflict in *Team Writing* for class** **Second draft of proposal/report due Friday, 11/13, by 11pm** **Interviews should be complete by Friday 11/13**
Sessions 7&8: Ethics in research and progress presentations	

Tues 11/17	1) Individual team meetings to discuss progress, questions, problems
	
	2) Ethical considerations in research
	   a) Who does your solution benefit and potentially harm?
	   b) Is it culturally appropriate?
		Interview Transcribing and Analysis Assignment Due on Tuesday, 11/17, by 11pm

Fri 11/20	**Progress Presentations**	**Research Notebook Entry #3 due Thursday, 11/19, by 11pm** **Progress Presentations due in class**
Sessions 9&10: Poster Design and Revised Report sections		
Tues 11/24	ATC workshop on poster design	**Third draft of report due Tuesday, 11/25, by 11pm**
Fri 11/27	**No class!**	**None**
Sessions 11&12: Working and Drafting Poster		
Tues 12/1	Project Work Day	Project Work Day
Fri 12/4	Present Draft Poster	Present Draft Poster
Sessions 13&14: Mock Poster Presentations		
Tues 12/8	Work Day	**Tuesday, 12/9 submit final poster to ATC.** Your poster should be in Power Point, and it should be saved to a thumb drive/USB and delivered to the main office at Fuller Labs. You must drop off the USB in person before 12pm. The ATC staff will review the poster with you before you go.
Fri 12/11	Mock Poster Presentations	Prepare for Mock Poster Presentation
Poster Day, Session 15, and Final Report Due		
Mon 12/14	**Poster Day**	**Poster Day**
Tue 12/15	1) Last day of class: awards and feedback session 2) Work on Final Report/Profs available for questions	Work on Final Report
Fri 12/17	**Final Project Report due by 11:59pm**	**Final Project Report due by 11:59pm**

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EARLY SEMESTER ASSIGNMENT #1

GPS: The World's Water
A Term

Professor Rosbach and Professor Stoddard
Worcester Polytechnic Institute

Water Problems Micro Project
2015

Assigned: Week 4/14, given 1.5 weeks to complete
Goals of this assignment:
1) To continue to build research, teamwork, and presentation skills.
2) To become knowledgeable about some of the most significant, contemporary issues surrounding water scarcity, use, and pollution.

Instructions
For this assignment you will be placed on a team of three or four students (we will have six teams total). You will then, as a team, choose a first, second, and third choice topic from the list below.
In this project, you and your team will:
1) Define, explain, and discuss the particular water issue that your team is focused on.
2) Discuss the context in which this problem exists. For example:
   a. Where does this problem exist? Is it a local, regional, or global water problem?
   b. Who or what is causing this issue?
3) Who does this problem impact? Consider both humans and nonhumans (plants, animals).
4) Discuss at least 3 of the following dimensions of the problem: technological, social, economic, and environmental.
5) Discuss how this problem is connected to at least one of the root causes of sustainability (see MyWPI resources page for access to the sustainability videos from the first day of class).
6) Conclusion: identify 1-2 potential solutions. **You will not analyze these solutions this point. This will be your focus in B term.**
7) Present your problem analysis to the class in an exciting and captivating 8-minute presentation.

Student Teams
Your teams will be posted to MyWPI on September 3.

Topics and Due Dates

Three teams will present on the following topics on Monday, 9/14
1) Ocean acidification (some of the focus should be on the impacts to humans and nonhumans)
2) Drought in California (some of the focus should be on the impacts on agriculture and fish loss)
3) Sea level rise (some of the focus should be on the impacts for global cities, see:
http://www.businessinsider.com/cities-exposed-to-rising-sea-levels-2014-4

Three teams will present on the following topics on Thursday, 9/17
1) Dams (some of the focus should be on mass relocation and pollution)
2) Agricultural water pollution (some of the focus should be on large scale industrial livestock production and/or crop production in developed countries)
3) Industrial water pollution (some of the focus should be on health impacts in less developed countries)

Presentation Requirements
1) Length of Presentation and Number of Slides
- The presentation should be 8 minutes long (2 minutes per team member). Presentations that are significantly shorter will have points deducted. Presentations that are longer will be stopped and points will be deducted. **Practice, practice, practice.** Presentations that have not been practiced at least once are ALWAYS disjointed, poorly timed, and have clearly not been practiced. Don't make this mistake.
- You must have at least 7 slides and no more than 12 slides in your presentation. The general rule in good presentations is no more than one slide per minute.
- Your slides should be primarily images and graphics. It should not be all words (makes presentations boring).

2) Presentation Components
- Your presentation must have the following components
  i. <u>Introduction</u>: walk us through, in brief bullet points, what you are going to talk about.
  ii. <u>Define and Describe the problem</u>: Discuss the context in which this problem exists. Where does this problem exist? Is it a local, regional, or global water problem? Who or what is causing this issue? Discuss at least three of the following dimensions of the problem: technological, social, economic, and environmental.
  iii. <u>Identify the stakeholders in the case:</u> Who does this problem impact? Consider both human and nonhuman (plants, animals). Are particular groups of people more affected by this water problem than others (e.g. low income, ethnic minorities, certain genders or ages, etc.)? Does anyone benefit from this problem?
  iv. Discuss how this problem is connected to at least one of the root causes of sustainability (see MyWPI resources page for access to the sustainability videos from the first day of class).
  v. <u>Conclusion: identify 1-2 potential solutions</u>. **You will not analyze these solutions this point. This will be your focus in B term.**
  vi. <u>References</u>: at least 12 (3 per team member); APA Style

3) Presentation Style
- Be persuasive! Use clear reason and evidence to explain the problem and make your case. These are problems that currently impact people's and animals lives! Help us to see what life is like from their point of view.
- Try to discuss the issue with us, instead of reading off of cards. However, if you feel most comfortable reading off of cards, make sure to read with a lively voice and make eye contact.
- YOU MUST practice your presentation as a group at least once before your presentation. We are here to learn from you. Give yourselves and us the respect of doing a great job presenting your problem and pleading your case on issues that impact people's lives from around the world.

4) Sources
- You must have at least 12 different reliable sources: 3 sources per team member (for what are reliable sources, refer to your notes from the library tutorial).
- These sources must be listed on the last page of your presentation. They must be cited properly. Please use the APA style. For image sources, please provide links only.

5) Work must be Shared Equally by Group Members
- Divide tasks and follow the task schedule
- Make time to work together as a group
- Make time to practice at least once together

Questions
- Contact your professors any time via email with questions or concerns: eastoddard@wpi.edu and drosbach@wpi.edu
- Make an appointment to meet with your professors during office hours or by appointment.

Presentation Rubric

Possible Grades for each dimension

	A	B	C	D
Dimension	**Excellent**	**Good**	**Fair**	**Needs Substantial Improvement**
Completeness	*Required Components* ● All six presentation components are covered	● Missing one required component	● Missing two required components	● Missing three or more required components
Sources	● There are at least 3 cited sources in the presentation PER TEAM MEMBER ● Sources are cited properly	● Missing one source ● Some citation errors; moderate need for editing	● Missing two sources ● Citation errors distract readers; significant need for editing	● Missing three or more sources ● Citation errors interfere with readability
Group Presentation	● There are between 7 and 12 slides	● There are 6 or 13 slides	● There are 5 or 14 slides	● There are 4 or 15 slides

Style	• Slides are primarily images and graphics, not words • Group presents information with smooth transitions from one team member to the next • Presentation seems well practiced	• Slides have equal amounts of graphics and words • Group transitions generally well, a few stumbles; still able to follow case study • Presentation seems moderately practiced, but still a little bit rough	• Slides have more words than graphics • Group transitions are distracting; hard to follow case study • Presentation seems barely practiced and quite rough	• Slides are primarily words • Group presentation and transitions are disjointed; difficult to impossible to follow case study • Presentation seems unpracticed and is disjointed
Individual Presentation Style	• Presenter discusses case with us in a clear and compelling manner. OR if presenter is using cards, she or he reads in a clear and lively voice and makes eye contact during natural pauses • Presenter presents for at about 2 minutes	• Presenter is generally clear, but could be more compelling and lively • Presenter makes moderate eye contact, but tends to look at cards • Presenter presents for 1 or 3 minutes	• Presenter is often unclear, and lacks a compelling presentation style • Presenter only makes eye contact occasionally • Presenter presents for less than 1 minute or for 4 minutes	• Presenter is generally unclear and not compelling • Presenter does not make eye contact • Presenter presents for less than one minute or for more than 5 minutes
Ideas and Content	• Ideas and themes is are clear and straight-forward • Ideas are well elaborated • Details are effective, specific, and relevant	• Ideas and themes are generally clear and straight-forward • Ideas and details usually effective, specific, and relevant but may be limited in depth	• Ideas and themes are vague • Ideas are thinly developed; details, when provided, may be irrelevant, unfocused, or too general	• Ideas and themes are not clear or straight forward • Ideas or details very limited, unclear, or difficult to follow • Discussion seems off topic, disconnected, or random

Comments and Grade:

EARLY SEMESTER ASSIGNMENT #2

FY1100 Biosphere, Atmosphere, and Human Fears
Land Use Change Assignment
Learning Outcomes: research, writing, presenting, team work, cultural awareness
Assigned week 1 of 14 and given 1 week to complete

This assignment involves conducting research on a location, the land changes occurring at that location, and a species of interest in/near that location. This assignment will have 2 components: an ***individual*** component where each student completes their own, unique work, and a ***group*** component where group members work together to complete one product.

Individual Component: Annotated Bibliography
It is expected that you use scholarly sources of information to research your topic, and you must cite your sources. You will need to find and annotate at least **three (3) legitimate** sources PER PERSON in your group. You must use APA citation format and you must BE CONSISTENT when citing sources. The Research Librarian will come to class and provide assistance but you are STRONGLY ENCOURAGED to meet with or contact her for this and future assignments.
Legitimate sources include the following:
1. Scholarly Journal Articles
2. Books
3. Government/University/Professional Association websites
4. Popular press such as newspapers or magazines

Guidelines for annotated bibliography:
1. Proper Article Citation: At the top of each entry, you should cite the article according to proper APA style.
2. Annotation: The annotation should be given in paragraph form and should do three things. First, it should ***summarize*** the main point or argument that the source offers (and briefly discuss the support offered for it). Second it should ***assess/evaluate*** the source (How useful/important do you think the source is? Is it biased? How does strong is the evidence presented for the main point? Does it seem objective or biased?). Finally, you should say something about how this source does or would ***fit*** in to a research project on the topic you have chosen- in what way is it helpful? Does it lend support to your own view of the topic? Does it challenge or change your view? How and why?
For further instructions/information on writing annotated bibliographies (including examples) take a look at
http://owl.english.purdue.edu/owl/resource/614/01/http://owl.english.purdue.edu/owl/resource/614/01/
http://owl.english.purdue.edu/owl/resource/614/01/

Group Component: You will submit a written response to the research questions **as a group (one response per team)** and then you will share what you learn with your classmates through a class presentation. Each group will have about 5 minutes to highlight some of their most interesting findings. Instructions for the written portion of this assignment:

1. Your responses to the questions should take the form of a short essay.
2. You should make sure that your team's answers to the questions are written in a uniform style.
3. You should make sure that you have edited your response, that it is grammatically correct and free of spelling errors.
4. All citations should be done in APA style.
5. You should cite (in text) anything that you use directly from your sources or that you paraphrase.

6. Your bibliography should include all references used in gathering your information.
7. In addition to your regular bibliography, each individual must turn in an annotated bibliography (that is the individual component of the assignment).

Instructions: Using an Internet browser, go to http://changematters.esri.com and click on the **Viewer** tab. Now you will see three images next to one another. Enter the location of your site and compare the images from 1975 to 2010. You can see what land uses are represented by the different thumbnails in the Legend under the first two images. Also, under the right image you can click on how to interpret a change image.

Hint: Don't try to study all of the two images at one time. Choose one small geographic area to look at, and compare it with the same area in the more current image. Then choose another area and continue to compare.

Assignment Questions:

1. Provide some basic information about the location. For example: Where is it located? How many people live there? What is the biological/environmental significance of your general location? You need to cite your sources.
2. How would you quantify changes in land cover between the time periods? Give a specific methodology to do this.
3. What are the top two land cover types? What uses might be associated with the dominant land cover types? Which land cover /land use types have increased? Which have decreased?
4. Predict how and why land use/land cover will change in the future at this location.
5. List and explain 3 potential causes of the land use/land cover change at this location.
6. List and explain 3 specific ecological effects or problems associated with the land use/land cover change in this location. What data would we need to investigate these specific ecological effects?
7. Based on previous readings or other sources, explain how 2 solutions could be used to mitigate land change in your location.
8. With the species we gave you, research how the change in land cover in the area may be affecting that species. Explain.

EARLY SEMESTER ASSIGNMENT #3

FY1100 Food Sustainability
Ethnic Markets Food Budget Assignment
Part A
Assigned week 2.
Time to complete: 1 week
70 pts.

Purpose: By the end of the assignment you will know several people in the class, a bit more about Worcester and you will have a broader awareness of the constraints on food choices imposed by budgets, geographic location and cultural preferences, as well as the impact on nutrition. (Plus you might have a greater appreciation for whomever it was in your family that did the shopping and meal prep in your household!)

Learning Outcomes Involved: Teamwork, Problem solving, cultural awareness, nutrition

Part 1: 40 pts
You have been divided into groups and assigned 2 amounts of money, either $80 and $100, or $80 and $150. Each group has also been assigned a local market. Go to your assigned market and determine what you would buy to feed a family of four for a week if you only had $80. Then decide what you would do differently if you could spend the larger amount of money (either $100 or $150 depending on your group). Assume your cupboards and fridge are empty. You must buy **everything** they are going to eat or drink (except water) for that entire week and you may spend no more than the amounts of money that you were assigned. **Your primary consideration is to keep your family from being hungry**; this means meeting the caloric needs of the family for the week. Do the best you can to include a variety of foods; an all ice cream diet is not acceptable.

1. Make a list of each item that you would buy, the amount and the price. Try to keep this on one page.

2. You also need to calculate for both shopping lists (the $80 and greater amount) using either labels or your other resources, the totals for the number of calories and % calories from each category: fat, protein and carbohydrates. Create a summary table that compares the daily per person averages of these for both the lesser and greater amounts of money. Only turn in the summary table! Use the layout below:

	$80 Budget		Bigger Budget	
	Cal/person	% Calories	Calories	% Calories
Carbohydrates				
Protein				
Fat				
Total				

3. Be prepared to give this information to the class on Thursday, September 12.

4. Write a one page (max) description of the process, answering the following questions.
    1. How did you decide what to select?

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2. How well did you do in meeting the family's caloric needs? How nutritious is this diet?
3. What effect did the larger budget have on the nutritional value of the foods you selected?

Grading for Part 1:

Items that will be turned in (40 pts): NOTE: One per group!

1. List (10 pts): Food items should total required amount of money. It should be clear how many of each item would have been purchased. There should be a reasonable variety of food items.
2. Table of total **per person average** calories, calories and % calories from fat, protein and carbohydrates for each diet:
      Layout (5 pts): 5 columns, appearance, labels
      Content (10 pts): required nutrients listed, all data present
3. Description (15 pts): Questions answered clearly, appropriate mechanics, demonstration of some creativity in approach to solving the problem

Part B:

You will be using the book **What I Eat** by Menzel and D'Aluisia (on reserve at the library). This book has pictures and short descriptions of one day's food intake of individuals around the world. There is also an associated website but it has only a few of the individuals in the book. For your country (assigned in class) compare the diets of two individuals. Many of you have only two people representing that country; others have more. For those of you with more, select the two most different (and be prepared to tell us why these were the most different).

The caloric intake is listed for each individual. Please break down the total calories into amount and % of calories in each of the following categories: protein, carbohydrate and fat, as you did above. Put the overall calories, and the calories and % calories from fat, carbs and protein for both individuals into a single table, modifying the layout on the previous page appropriately. Add a column with the adult RDA in terms of % calories that will allow comparisons.

Answer the following questions about each of these diets.

1. Does the diet follow USDA guidelines for total calories and for the major categories of foods (fat, protein, carbohydrate)? If not, where and how does it differ?
2. Is this individual in danger of being malnourished if this diet is truly representative of her/his daily intake? Justify your answer. Note that malnourished describes both excessive intake of nutrients as well as deficiencies in nutrients.

In comparing the two diets:

3. Can you identify any differences in life circumstances that might play a big role in the types and amounts of food eaten by your two individuals? Please describe what these differences in circumstances might be and hypothesize why they have the impact you suspect.

Grading for Part 2: 30 total points. Note: One per group

1. Table: Layout (5 pts): appearance, labels
        Content (10 pts): required nutrients listed, all data present, RDAs present
2. Answers to questions – fully explained. 5 pts each.

EARLY SEMESTER ASSIGNMENT #4

FY1100 Livable Cities
City Life Interview Assignment
Learning Outcomes: research, presenting, cultural awareness, team work
Individual component: Assigned in week 2 of 14 and given 0.5 week to complete
Group component: Assigned in week 3 of 14 and given 1-2 weeks to complete

The first phase of this assignment is to be completed **on an individual basis**. Reflect upon what you think makes a city livable. Then, considering those factors, make up a list of interview questions that you might ask of a city-dweller about the joys and problems associated with city life. What city dwellers do you know who could answer questions about city life? You are urged to think of demographic differences potential interviewees might have: age, income, gender, race, geographic location of city, etc. You should also think about who you would be willing to contact as a participant. Prepare a list of 8-10 questions that you think will provide good information and food for thought about the joys and problems of city life. This list is to be turned in as homework and bring a copy of your interview questions to class on its due date. Bring a list of potential interviewees including where they live and other demographic data to class as well. During that class we will move to the next phase of the project which involves group work.

See the Interview Tips at http://blogs.kqed.org/education/files/2014/03/9a-Interview-Tips.pdf for assistance.

Below are some aspects of city life you might want to ask questions about. These are just suggestions. You should also think of some questions on your own that will help shed light on city livability.

Environmental: What kinds of environmental problems might this city have? How many kinds of living beings are affected by these problems? Does a certain problem involve a whole city, or just a particular part of a city? Is the environmental problem one whose scope is neighborhood extensive, city extensive, region extensive? What types of impacts does the issue have on the land/sea/living things of this city? What are the impacts to plant species? What are the impacts to local wildlife or ecosystem services?

Social: In what ways are local (human) communities impacted by this issue? Is everyone in the community equally impacted? Or are the impacts unevenly distributed? If the latter, explain this distribution (i.e., are there groups of individuals that are harmed, or more harmed, by the issue? Are their groups who are benefited?). What solutions are being offered? Who do they benefit/harm?

Political: What are the political stakes involved in the issue as well as the solutions being offered? Are there differing political views involved in attempts to mitigate the issue? What are these?

Economic: What are the economic costs of the issue? What are the costs of the ways in which the issue is being addressed? Do the costs of addressing the issue in certain ways make those ways unsustainable? Are some ways of addressing the issue more cost effective than others? How could we assess this?

Cultural: Why might your interviewee love about living in this particular city? What might your interviewee hate about city life? What aspects can be made better or might be enhanced or best left alone?

Phase two of the assignment requires **group work**. After being assigned to a group in class, plan to meet together in and out of class to compare your lists of questions and your ideas of potential interviewees. As a group, plan to contact by Skype (or similar program) several people you know who live in cities.

Ask permission of the interviewee and explain what you plan to do before you contact them for the actual interview. There should be at least five contacts for your group. Try to select interviewees that have some variety in terms of age, demographics, and city discussed. Capture your phone interviews. The Academic Technology Center (ATC) is here to help us learn to do that.

As a group, you should ask each interviewee a uniform list of questions. The goal is to have the interview reveal the ups and the downs of living in a city and the quality of life and resources those particular cities have to offer. Your interviews may also show the contrasting problems that city dwellers experience.

With technical aid from the ATC, edit your Skype interview videos into a short edited film of **no more** than 10 minutes. Be critical of the material you keep in your video. You will need to post these videos to a youtube account (ATC can also help with this) and email that link to us. We will compile a list of ALL of the links and email those back to you. Then EACH person will watch the videos and complete a peer evaluation. The best video, as determined by the instructors, will be shared during class time and discussed.

Again, for this assignment: 1 member of your team MUST upload the link of your youtube video AND EACH person must complete a peer evaluation form (via a qualtrics survey). Attached to this assignment is a rubric to grade the videos and the questions you will see in the peer evaluation.

Rubric for Cities Video assignment
 Assignment total = 30 points: Professors' rating = 25 points (using rubric below); 5 points from average of peer/PLA surveys (Qualtrics surveys)

	Not Completed 0 pts	Unacceptable 1 pt	Needs Improvement 2 pts	Acceptable 3 pts	Very Good 4 pts	Excellent 5 pts
Interview questions: 5 points The list of interview questions should be uniform for each person interviewed. They should be planned with an eye to eliciting useful information about the possibilities and problems of living in a city.	No interview questions prepared on contacts made.	Interview questions not well formulated and planned.	Interview questions show only partial success in formulation and plan.	Interview questions are adequate and contacts made.	Interview questions are clear to those interviewed and elicit helpful information.	Interview questions are well formulated and purposefully planned. Participants are contacted, permission obtained, and purpose of interview explained.
Content: Choice of interviews as information sources 5 points	There is no attempt to edit the number or thematic content of interviews used in the film.	Too many or too few interviews are used to make the video clip effective and informative.	The quantity of interview clips used is appropriate to the time limitations, but there is no attempt to select a variety of points of view.	An acceptable number of interviews are used relative to the time limitations, but the interviews chosen fail to show any range of responses.	There is an attempt to choose interview clips in a meaningful way, but the attempt is not totally successful or has room for improvement.	Interviewees are drawn from a variety of age, geographic, and gender demographics and arranged in such a way as to make or suggest a problem or theme subject to demographic

						variation.
The people selected to interview present a good sample in terms of the project goal of saying what makes a city good or problematic.						
Content: Editing for interpretive meaning 5 points A good interview video uses the responses of those interviewed to emphasize and illustrate one or more important points about the joys or problems of city life.	Interviews are randomly selected or cut as raw uninterpreted data.	It is completely unclear how the students interpreted the interview data they have presented.	An attempt at interpretive editing was made, but was not effective.	An attempt at interpretive editing was made with a modicum of success but clear room for improvement.	An interpretive vision is apparent in the video editing, but the meanings conveyed opened up no new ideas about human aspects of city life.	The viewer takes away some interesting points to ponder after seeing the video due to the design of the film. These points give viewers a new or wider understanding of human aspects of city life.
Production: 5 points Includes editing, sound and light, special effects.	Unable to see and/or hear the video well enough to evaluate it.	Defects in sound and/or lighting quality make it difficult to watch and understand, and significantly detract from the final product.	Some defects in editing, sound quality or lighting quality detract somewhat from the viewer's experience.	Editing, sound and lighting do not interfere with the viewer's experience, but neither do they enhance it.	Students made an effort to enhance the quality of the finished product with sound, lighting, effects and/or editing.	Outstanding effort was clearly made to produce a polished product. Very easy to see and hear. The team went above and beyond in production, editing, and/or effects.
Creativity: 5 points The team attempted to present the information from a new or different point of view. The finished product is entertaining and interesting to watch.	Clear lack of effort put into production of the final video.	Presentation lacks in creativity.	The presentation is dry, or is too complicated or abstract for the viewer to follow.	The team attempted to present the interview responses from a new or different point of view.	Topic is presented from an interesting or different point of view.	The presentation was both interesting and enjoyable to watch. The team truly went "outside-the-box" to create a fresh and innovative way to present their project.

The Qualtrics survey you will fill out will roughly follow the guidelines below. The average of the class responses and your PLAs will all be combined to arrive at the final 5 points of the grade.

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Your Name:

Group number of the video you are reviewing:

Your opinion of this video (you will click the appropriate buttons on the online survey form for each question):

Question	Strongly Disagree (1)	Disagree (2)	Neutral (3)	Agree (4)	Strongly Agree (5)
The topic is clear and easy to understand					
The interviews presented evidence to support the argument is convincing					
The evidence is explained in a way that is easy for a non-scientific audience to understand					
The possibilities and difficulties of city life were well-portrayed					
I learned something from this video					
I feel that my classmates made an honest effort to do their best in creating this video					
I enjoyed watching this video					

EARLY SEMESTER ASSIGNMENT #5

The World's Water
GPS: A 2015
Professors Stoddard and Rosbach
Peer Review Assignment: Annotated Bibliography

Assigned: Week 8/14, given 0.5 weeks to complete, finish completion in class

Instructions
Email your annotated bibliography to your assigned partner. Review your partner's annotated bibliography based on the criteria below.

Goal of the Assignment

The goal of this assignment is to help you practice evaluating the quality of research practices. This annotated bibliography will be reviewed by us, your professors, as well as by one of your peers. The goal of the peer review is to get you all used to providing productive feedback to your peers and for you to develop your skills as editors. This is a skill you will need when writing your proposal and major report together for your term project.

Review Criteria

Use these criteria to comment on your partners Annotated bibliography. Make note of what aspects of the assignment are done well and what aspects could be done more effectively.

1. Research Activities: Are the research activities described in enough detail that you could follow the instructions and get the same results? Is the logic clear as to why certain sources were chosen and others were discarded?

2. Citations: Are the citations properly cited in APA format? Is at least one source from a peer reviewed scholarly journal or academic book?

3. Annotations:

     a.) Does the summary of the article identify the authors main point or main   argument? Does the summary facts and information from the source?

     b.) Did the student evaluate the evidence provided by the author? Did the student evaluate the source for its credibility (Currency, Reliability/Evidence, Authority, Potential bias)?

     c.) Is it clear how the source relates to the research topic?

LATE SEMESTER ASSIGNMENT #1

The World's Water
GPS: A 2015
Professors Stoddard and Rosbach

Project Proposal Peer Review

Assigned: Week 13/14, given 0.5 weeks to complete, finish completion in class

Goal of the Assignment
The goal of this assignment is to help you 1) practice evaluating the quality of evidence based writing, 2) for you to continue developing your skills as editors, and 3) to identify what was done well and what needs work in other team's writing in order to identify similar issues in your own report.

Instructions
Download your partner's team's project proposal from your group site on MyWPI. Review the proposal based on the criteria below. Submit your comments to the "10-11 Peer Review of Proposal" assignment and email it to your individual partner (see the table on MyWPI).

Review Criteria
Use these criteria to comment on the proposal. Make note of what aspects of the assignment are done well and what aspects could be done more effectively.

There are different types of comments one can give as an editor. One can give EVALUATIVE comments (e.g. "I like this first paragraph"; "You did a really good job describing the problem"; "the writing is really good"; "I didn't like the part where you talk about stakeholders) or one can give DESCRIPTIVE comments ("I was confused in the first paragraph"; "After reading your account of the problem, I don't feel convinced that it's that big of a problem"; "One suggestion would be to discuss how the problem specifically impacts people's lives"). Descriptive comments are more effective in pointing out parts that need revision. Evaluative comments--both positive and negative--tend not to contribute much to a writer's specific sense of what to do. So, do your best to give your partner as many descriptive comments as possible.

Introduction
1. Does the introduction summarize the problem by clearly identifying what the problem is, where it is taking place, and why it is important?
2. Do they indicate what we can expect to read in the rest of the paper, similar to the way you introduce your presentations?
3. Are you convinced that this is indeed a serious problem that needs to be addressed?

Define and Describe the problem

4. Is it clear exactly what the problem is and where it exists? Are other examples provided from places where this problem has been studied more thoroughly and is better understood? (For example, runoff and pollution from Higher Ground Farm has not yet been studied but the problem of agricultural pollution and runoff at other farms is well documented. These other studies provide information that can help better understand Higher Ground Farm's situation.)
5. Is the context of the problem well established, including the history of the place or type of problem, the people involved, the technology, land use or human behaviors that are causing the problem.
6. Are the following dimensions addressed: social, economic, technical, and environmental?

Stakeholders
7. Are the stakeholders identified?
8. Are the impacts on stakeholders explained? Including who may be impacted more or who may benefit from current conditions?

Two Concepts
9. Are two concepts from different categories defined and used accurately? Was the concept used in a way that helped you better understand the problem?

Conclusion
10. Does the conclusion clearly and concisely summarize the problem?
11. Is a primary cause of the problem identified and explained?

Citations
12. Are the facts and claims about the problem and stakeholders backed up with properly cited evidence?

LATE SEMESTER ASSIGNMENT #2

GPS: The World's Water

Professor Rosbach and Professor Stoddard

Worcester Polytechnic Institute

Expert Interview Assignment

B-Term 2015

Assigned: Week 9-11/14, given total of 3 weeks to complete

Goal of the Assignment

Develop research skills, data collection skills, editing skills, and team writing and revising skills

Instructions: PART 1, Interview Contact

1) Make a list of three potential interview participants along with their contact information. Be sure to read any feedback that was on your problem proposal. SPONSORS DO NOT COUNT for this list.

2) Include a rationale of why an interview with each participant will benefit your project. For example, what about this person makes them an expert or an invaluable source for your project/water problem?

3) Speculate about how they might help you think about the problem or potential solutions. What information or expertise do you think they can offer?

4) Post your list and rationale here by Thursday, 10/29, at 11pm.

Instructions: PART 2, Draft Interview Questions

1) List the names of your interview sources. Give a brief description of who they are and a brief explanation of why you chose this source (what is their expertise and why is it relevant to your project). (~1 paragraph)

2) Write 5 interview questions for each of your interview sources. These questions should informed by the research that you have done on your sources (e.g. papers they have written, their biographies on a web page, etc.). Use the following to structure your 5 questions:

   a. Start with a few general questions about the source's professional background to put the source at ease.

   b. Next begin with some questions your specific study topic. The questions should start with a single aspect of your topic.

   c. More detailed questions about this particular aspect of your topic should follow.

   d. Begin asking questions about the next aspect of your study topic.

   e. More detailed questions about this second aspect should follow.

   f. Continue this process with any additional aspects of your study topic.

   g. End by thanking them for their time.   Ask if you can contact them again if your have any follow up questions, and, if so, the best way to reach them.

Instructions: PART 3, Peer Review of Interview Questions

Write down what you hope to learn from each interview, and then give this to your partner.

Read your partners learning goals for one interview participant, and then provide them with written feedback on the following questions. Follow the same process for their other two interview participants.

1) Do the questions start out broad and then become more narrow and specific?

2) Are the questions grouped into specific topic areas?

Instructions: PART 4, Final Draft of Interview Questions

Post your team's final draft to MyWPI by 11/9. Interviews must be complete by 11/20.

LATE SEMESTER ASSIGNMENT #3

GPS: The World's Water

B Term

Professor Rosbach and Professor Stoddard

Worcester Polytechnic Institute

Professor Rosbach and Professor Stoddard

Written Project Report Assignment

Assigned: Week 8/14, given 7 weeks to complete, 2 drafts assigned before final draft
Goal of the Assignment
Develop research skills, data collection and analysis skills, team writing and revising skills, and evidence-based writing skills

Overview of Project Report Assignment

The purpose of the Project Report is to provide an uninformed reader with a clear, thorough, organized, and detailed narrative about your research that includes: a) your goals and objectives of the project; b) a well-defined water problem and the different dimensions of this problem; c) who this problem impacts (the stakeholders); d) how you researched this problem and potential solutions, how you analyzed your data, and how this is linked to your goals and objectives (your methods); e) what solution(s) you are proposing, how they address the different dimensions of your problem, and why they are technically and culturally appropriate; f) how you plan to implement and assess your proposed solution; g) the ethical considerations of your problem, solution, and research; h) and your broad recommendations regarding the problem and solution moving forward.

Written Project Report Requirements

    *Technical Details***:** 15 - 25 pages double spaced, 12 pt. Times New Roman font, 1" margins. APA

citations: both in the text and for the reference list.

Report Components

1. <u>Title Page (on a separate, single page)</u>**:** Follow APA format (Title of the report, your names, date, course name and institutional affiliation – No abstract necessary).

2. <u>Executive Summary</u> (about 3 pages) *(longer description below):* The summary begins with introductory material including the problem or issues your project addresses, your project goal, objectives, and approach to problem.
    *   You MUST clearly state your project goal and subsequent objectives.
    *   The bulk of this section should be Findings, Conclusions, and Recommendations.

3. <u>Problem Statement (about 1 page)</u>: Briefly state the problem your project addresses and why this problem is important.
    *   Problem statements often have three elements:
        a) The problem itself, stated clearly and with enough contextual detail to explain why it is important. Included in this statement is the primary question that guides your research about the problem, and 1-3 supporting sub-questions if necessary.
        b) The proposed method of solving the problem (can be stated as working thesis);
        c) The goals and objectives of the project.
    *   These 3 elements should be brief and concise so that the reader does not get lost.

4. <u>Background: Dimensions of the Problem and Stakeholders</u> (about 5-6 pages): This section should clearly describe the different dimensions of the problem, the underlying causes of the problem, and the stakeholders impacted by the problem.
    *   What exactly is happening that is undesirable, and where is this taking place?
        o   Provide us with some background about the place (e.g. in the Appalachian Mountains in West Virginia where mountain top removal coal mining dominates the social and environmental landscape OR in a war torn village in X region of Y country, where community members are fighting over access to scarce resources OR in an agricultural community in X county in Y river basin with immigrant laborers who face extreme poverty and don't have access to clean water OR in an environmental

justice community in X low income neighborhood in Y city where they are
disproportionately exposed to chemicals from recycling electronic waste).

- Discuss the following dimensions of the problem in detail: social, economic, technical, and
environmental

- Identify 2-3 groups of stakeholders (can be human or non-human) in your case. Discuss who
is suffering from this problem and how? Are particular groups of people, animals, or
ecosystems more affected by this water problem than others (e.g. low income, ethnic
minorities, certain genders or ages, endangered species)? Does anyone benefit from this
problem?

5. Concepts: Use two concepts from class to analyze the problem (within and throughout the text;
concepts do not have to go in any particular section):

- Define the concepts that you use. The definitions should come from class lectures, readings,
and/or notes. If they are from another source, they need to be cited.

- Draw explicit, clear links between the concepts from class and the problem you are
analyzing. In other words, be crystal clear about how the concept is related to or helps to
explain the problem you are analyzing.

6. Methodology -- Approach to the Problem (about 2 pages): This section describes your problem
solving approach. This section should address the following questions:

a. How did you collect your data? (Did you conduct interviews, collect water samples,
review secondary data, etc.?)

b. How did you analyze your data? (Did you compare multiple solutions or technologies?
Did you use a life cycle analysis, cost benefit analysis, SWOT analysis, etc.?)

c. How did your methods help you to achieve your objectives?

d. Why did you choose your particular methodologies?

e. What are the limitations of your approach?

7. Proposed Solution (2-3 pages): Here is where you state your proposed solution to the problem.
THIS SECTION SHOULD ONLY FOCUS ON THE CURRENT SOLUTION THAT YOU
ARE ANALYZING. IT SHOULD NOT INCLUDE PREVIOUS SOLUTIONS THAT YOU
HAVE NOW RULED OUT.

- Why are you proposing this particular solution? You need to fully address how your solution
will either remove the underlying cause, or ameliorate the effects of the problem.

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- Which stakeholders do these solutions potentially help and why?

- Discuss the following dimensions of the solution: social, economic, technical, and environmental

- What are the limitations of your solution?

8. <u>Mechanism for Implementation and Assessment</u> (1-2 pages): In this section you will need to provide the details of how the solution would be implemented. You should be as specific as possible.

   - Address issues such as: how much it will cost, who will do the work, what barriers might be encountered, when it will take place, what steps need to take place before implementation is possible.

   - Explain how success will be determined. What will be assessed and by whom? How and when will the assessment take place?

9. <u>Ethical Considerations</u> (1/2-1 page): You were tasked with identifying a particular problem and proposing a potential solution. While doing so, what ethical considerations guided your choices?

   - Write a short reflection about the ethical issues of both the problem you identified and potential impacts of your solution. For example, were some of the stakeholders in your community not able to access safe, affordable, clean water? Why is this an ethical issue? Should access to safe, affordable, clean water be a right? Is your problem an issue of water pollution? Why is this an ethical issue? Does it affect a person's quality of life? Is it an environmental justice issue?

   - Will your solution favor some people over others?

   - Were there potential negative outcomes that you attempted to avoid? For example, privacy issues (not disclosing someone's identity), not increasing or adding economic burdens onto a community, not harming humans, animals, or ecosystems with your solutions, not putting someone's livelihood at risk

   - Is your solution culturally appropriate? Will it be well received by the community? How do you know?

10. <u>Conclusion, Broader Impacts, and Recommendations</u> (about 1 page):
    - Briefly summarize why your proposed solution is important and whom it will impact.

    - Provide at least three detailed recommendations to a particular group(s) about how to address the problem (e.g. your sponsor, particular stakeholders, policy makers, etc.).

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- This is also the section to propose future research that you did not get to but you believe still needs to be done.

11. <u>Statement of Learning</u> (about 1 page): Summarize the key learning obtained while working on this project and connections between your project and coursework.

    - Summarize the content knowledge you acquired: what did you learn about your problem that you didn't know before? What did you learn about your solution that you didn't know before? What skills did you acquire (if any)? Interview skills? Data analysis skills?

    - Summarize the non-content knowledge you acquired: what you learned about yourself and your capacity to do quality work (i.e. dealing with ambiguity, working as a team, identifying goals and objectives, time management, critical thinking, dealing with conflict, leadership etc.

12. <u>Citations</u>: At least 24. Use APA format.

13. <u>Appendices</u>: Any supporting evidence that you produced (data, charts or designs) and are referenced in your report

    - You must have at least one appendix with your interview questions from each participant

Explanation and Examples: Executive Summary and Recommendations

- *The Executive Summary*

  As the name implies, the *Executive Summary* is intended for the busy person who does not have time to read your whole report but may make some decisions based on your work. Therefore, the Executive Summary should be able to stand alone, independent of the report, and be succinct and persuasive. The Executive Summary may be more widely read than the report, and you are likely to write many such documents with very similar purposes throughout your professional careers.

  You can think of the Executive Summary as a microcosm of your entire report. You should convey an understanding of the problem succinctly and state your project goal and objectives such that its importance and relevance is clear; provide an overview of the methods at a level that makes it obvious that you have used established and valid methods (such that the executive will trust your conclusions); highlight key findings; compare alternatives where relevant, and present and justify your recommendations.

Executive Summaries generally end up being about 2 pages. The summary begins with introductory material including the problem or issues your project addresses, your project goal, objectives, and methods. Often you can "borrow" from parts of your report to put together the Executive Summary, using a subset of the same rhetorical moves. Cutting and pasting is acceptable, since it's meant to be a stand-alone document presenting the same information as the report. The bulk of the document should be Findings, Conclusions, and/or Recommendations. Sometimes they can be combined in creative ways.

Consider carefully the visual design of the Executive Summary. Use headings and descriptive lists to aid understanding and readability. An example follows:

- *Recommendations*

Based on our findings from X, Y, and Z, we recommend that the Royal Botanical Gardens Education Division include the following materials in the packet it sends to teachers in advance of field trips:

  o *A site map.* Teachers requested that parking areas, toilets, and the meeting place be clearly identified.

  o *Suggestions for pre-trip activities.* These activities should introduce key terminology that will be used during the excursion. Three example activities have been developed and are presented in Appendix C.