Mel and Enid Zuckerman College of Public Health  
University of Arizona  

SYLLABUS  
One Health Applications and Practice EPID 679  
FALL 2019  
3 units

Time: Thursdays 1:00 pm-4:00 pm with variable meeting times throughout the semester

Location: MRB 102 or Field Locations

Instructor(s) and Contact Information: Kristen Pogreba-Brown, PhD, MPH (Lead Instructor)  
kpogreba@email.arizona.edu  
520-626-3076  
Drachman Hall A220

Kate Ellingson, PhD  
kellingson@email.arizona.edu  
Drachman Hall A224

Instructor Availability: By appointment. Please email to schedule a time to meet.

Office Hours: By appointment

Catalog Description: One Health focuses on the interconnectedness of health among human, animal and environmental systems. This course will explore current One Health applications and practice which are used by various disciplines. Students in this course will participate in a variety of in class and field experiences, as well as work individually and with multidisciplinary teams to address existing and emerging local and global public health challenges.

Course Description: One Health is an approach that focuses on the interconnectedness of health among human, animal and environmental systems and how professionals work within a multi-disciplinary team to address these issues. By its very nature, One Health utilizes interdisciplinary research approaches to address local and global public health problems, leveraging knowledge from multiple professional expertise areas. This course will focus on the applications and practice in which One Health approaches are used by various disciplines. The students will work individually and within multidisciplinary teams. Activities will include classroom seminars, webinars, experiential work, and group activities

Course Prerequisites: None

Course Objectives and Expected Learning
Course Objectives: The goal of this course is to enhance students’ ability to work within a multi-disciplinary team and apply both the theory and problem-solving skill sets inherent to One Health. As a participant in the course, students are expected to independently complete various activities available through multiple sources (e.g. seminars and webinars available through multiple venues), as well as participate in required individual and group activities (e.g. journal presentations, field experiences, and group research projects). All materials will be submitted at the end of the semester as a completed portfolio. For field experiences, students are expected to attend all activities to which they have committed and act as professional representatives of the College.

Learning Outcomes:
By the end of the semester, students should be able to:
- Describe practical application of One Health in a variety of different settings and to address several different problems or diseases;
- Demonstrate knowledge of best practices for working within a multi-disciplinary team;
- Critically assess peer reviewed journal articles;
- Assess scientific presentations and determine how existing research may cross over into One Health;
- Describe challenges involved in coordinating a One Health response;
- Practice a variety of field-based skill sets utilized within a One Health research project.

One Health MPH Competencies Addressed
(1) Articulate appropriate methods and data sources to investigate the interdependency and interconnectedness of humans, animals, and the environment in health and disease development.
  a. In the final ‘Wicked Problems’ project, students will be required to assess a One Health problem using multiple data sources and present the problem and proposed solution merging a variety of disciplines.
  b. In the seminar ‘write-ups’, students are expected to draw connections between the information being presented to other disciplines and areas of research.
(2) Develop strategies to address One Health challenges by engaging researchers across multiple disciplines and stakeholders with diverse perspectives, motivations, and economic incentives.
  a. Seminar 'write-ups' to show cross connections across campus and globally (see above)
  b. Rocky Mountain Spotted Fever Round-up – this field project allows students to work with professionals from a variety of fields including environmental health, animal welfare and others to assess the community’s risk for RMSF and take preventative actions such as collaring dogs with ticks and spraying homes to reduce tick counts.
(3) Identify and implement appropriate methods to integrate and analyze data on animals, humans, and the environment to identify and quantify One Health problems and/or evaluate solutions.
  a. For the ‘Wicked Problems project’ groups must identify source of data, the feasibility of merging disparate data sources and describe ways these data could be using in conjunction with one another to address their chosen problem.
(4) Describe sentinel events in humans, animals, and the environment for detection of hazardous exposures and prevention of long-term negative effects.
  a. There are several lectures that address these issues, specifically one on Global Security. In addition, participation in Pandemic Flu IPE will also cover these concepts.
(5) Identify ecosystem changes and impacts that affect human, animal and planetary health.
  a. There are several lectures and in-class activities that address these issues, specifically Climate change and Health and Antibiotic Resistance Panel (clinician, environmental microbiologist and agricultural researcher).
MPH/Program Competencies Covered

*Systems Thinking*

22. Apply systems thinking tools to a public health issue
   a. In the final ‘Wicked Problems’ project, students will be required to assess a One Health problem using systems thinking and present the problem and proposed solution merging a variety of disciplines.

**Course Notes:** None

**Required Texts or Readings:** Recommended only
One Health: The Theory and Practice of Integrated Health Approaches 1st Edition
or
One Health: People, Animals, and the Environment 1st Edition

Other required readings will vary each semester based on relevant course topics and current events.

**Required or Special Materials:** None

**Course Requirements:**

1. Electronic Portfolio of One Health Experiences. The portfolio will reflect the majority of your grade and is comprised of several parts. Students are encouraged to begin working on their portfolio early in their graduate studies and may use material and assignments finished previous to the semester they are enrolled in for credit. The following are required items for the portfolio:

   A. **Attendance and Reflection of 4 Seminars:** Students are required to attend and document 4 seminars reflecting the One Health approach. Summaries should be approximately 1 page each. The summary should describe the research presented and how it relates to One Health (either in actual practice or how it could be related if applied in a different manner). Examples of ‘well-written’ write-ups are provided on D2L.

      - Seminars available to students include, but are not limited to Epidemiology, Biostatistics, Environmental Health, Behavioral Health, College-wide (COPH), Animal and Comparative Biomedical Sciences, Nutritional Sciences, Water Resources and Research Center, Institute of the Environment, Climate and the Environment, etc. The schedules for each participating seminar will be posted on the course website and/or the UA One Health website (www.onehealth.arizona.edu), but students are encouraged to seek out other seminars or attend special presentations as they arise.

      - Webinars from sites such as CDC (https://www.cdc.gov/onehealth/), One Health Commission (https://www.onehealthcommission.org/) or EcoHealth Alliance (http://www.ecohealthalliance.org/) also qualify.

      - If you are unsure if a presentation would qualify, contact the instructor within 2 business days of the event.

   B. **Critique of One Health Journal Articles:** The group discussions in One Health will discuss multiple papers around a single topic. One Health is inherently the intersection of many different disciplines so some of the papers you will read will be from only one or two of these perspectives while other papers may try to address these issues from a One Health perspective. The goals of our group
discussions will be to highlight these various perspectives (what are the concerns, priorities, methods, strengths/limitations, key stakeholders, etc) and for the papers trying to address all three, also critique how well they do so.

- There will be 5 group discussions over the course of the semester. You will be a group leader once during the semester (50 pts) and a participant for the other 4 (See the D2L document ‘Group Discussions in One Health 679’ for timelines, expectations of a group leader and a group participant.)

C. Pima Animal Care Center Project: This project will engage with the community through several group projects. Students will engage with staff and volunteers on-site, work as a group throughout the semester and present their results back to the staff and volunteers at the end of the semester. – see d2L doc ‘Guidelines for Pima Animal Care Center EPID 679 Project’ for additional details on the project and how each portion of the project will be evaluated.

D. Wicked Problem Project: What is a daunting public health issue that is best addressed using One Health principles? What are some innovative ways you can solve these problems? Students will work in teams throughout the semester to investigate the problem (literature review, interviewing experts in the field, field investigations or site visits, attending relevant seminars or webinars) and present a possible solution. The assignment will include a written proposal and a presentation. Further instruction of the requirements for a wicked problem will be posted on the D2L site.

E. Field Project: Each semester the class will participate in a different field-based experience related to a One Health research or applied problem. Students will be given in-class time to prepare for the project (such as develop a questionnaire, refine protocols for field sampling, design a sampling strategy, etc). Class time will be adjusted to account for time in the field. These events will likely occur outside of class time (anticipate one full day) and ARE REQUIRED. A University vehicle will be provided for all travel.

- Following the event, each student must submit a 1 page summary/reflection of their experience with the field project. Students will be provided the date and time at least a month before the event. Any misconduct in the field will result in a 0 for the participation and write up points (-100 points). In the event a student cannot participate in the field will be given an alternate assignment or field project as deemed appropriate by the instructor.

Due dates for all assignments will be provided on the course schedule. Late assignments will be docked 10 points per day.

**Attendance and Class Participation.** Regular attendance is expected. The standing meeting for the course will be set, although the class may meet irregularly (for example 2 weeks on and then 2 weeks off) depending on the time commitments needed for field experiences and group project work. There will be several presentations given throughout the semester by other students, guest lectures from faculty across campus and visiting speakers from industry or government. In addition, students are expected to complete any pre-class readings or assignments and come prepared to participate in a discussion of the topics.

**Grading Scale/Student Evaluation and Policies:**

*Electronic Portfolio = 600 points*

*Seminar reviews = 100 points (25 points each)*

*ID Group Presentation = 50 points*
Wicked Problem = **350 points** (25 pts for ‘check-ins’ +50pts draft +150pts written proposal + 125pts presentation)

Field Project = **100 points** (2 pages: 1 page summary of experience; 1 page on how it ties into One Health, what new research questions can be generated, what other partners could be engaged, economic sustainability?)

– OPTIONS this semester include RMSF Roundup, Volunteering 8+ hours at PACC, Nogales Food Safety Field Trip, or other project with permission of instructor (need at least one week notice in advance)

Class Participation = **300 points**

*Journal Article Lead = **100 points** (1x GROUP DISCUSSION)*

Discussion questions & participation for journal talks = **100 points** (33pts x 3 DISCUSSIONS as a group member)

Participation in other discussions or activities = **100 points** (30 points from Climate and Health Discussion)

*Note – there are no quizzes or tests for this course. There is no final exam. All course work is participatory in nature or written assignments.

**Total Points = 900**

A = 810-900 points
B = 720-809
C = 630-719
D = 540-629
E = <540

Requests for incompletes (I) and withdrawal (W) must be made in accordance with University policies.

University policy regarding grades and grading systems is available at: [http://catalog.arizona.edu/policy-type/grade-policies](http://catalog.arizona.edu/policy-type/grade-policies)

**Absence and Class Attendance/Participation:**

In-person and Online courses: Students will be expected to attend all course sessions. 3 or more unexcused absences from in-class sessions will lead to an automatic drop in one letter grade. Other absences or lack of participation (i.e. never or rarely participating in group discussions) will result in points lost from the 100 pts for participation as deemed by the instructor. Classes will be scheduled on a dynamic calendar (i.e the class may not meet at the same time each week). *Students will be responsible for checking the course schedule and posts on D2L to ensure they are aware of when the course meets.* Students who have a conflict with any of the course times must inform the instructor as soon as possible to make any necessary arrangements.

The UA policy regarding absences for any sincerely held religious belief, observance or practice will be accommodated where reasonable, [http://policy.arizona.edu/human-resources/religious-accommodation-policy](http://policy.arizona.edu/human-resources/religious-accommodation-policy).

Absences pre-approved by the UA Dean of Students (or Dean Designee) will be honored, [http://deanofstudents.arizona.edu/](http://deanofstudents.arizona.edu/)

**Course Schedule:** TBD – will vary each semester
Communications: You are responsible for reading emails sent to your UA account from your instructor and the announcements that are placed on the course web site. Information about readings, news events, your grades, assignments and other course related topics will be communicated to you with these electronic methods. The official policy can be found at: https://www.registrar.arizona.edu/personal-information/official-student-email-policy-use-email-official-correspondence-students

Disability Accommodations: It is the University’s goal that learning experiences be as accessible as possible. If you anticipate or experience physical or academic barriers based on disability or pregnancy, please let me know immediately, so that we can discuss options. You are also welcome to contact the Disability Resources (520-621-3268) to establish reasonable accommodations (as it is very important that you be registered with the DRC). For additional information on Disability Resources and reasonable accommodations, please visit http://drc.arizona.edu/students

Code of Academic Integrity
Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work/exercise must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UA Code of Academic Integrity, available through the office of the UA Dean Students: http://deanofstudents.arizona.edu/policies-and-codes/code-academic-integrity

Classroom Behavior: (Statement of expected behavior and respectful exchange of ideas: Present policies to foster a positive learning environment, including use of cell phones, mobile devices, etc.). Students are expected to be familiar with the UA Policy on Disruptive Student Behavior in an Instructional Setting found at: http://policy.arizona.edu/education-and-student-affairs/disruptive-behavior-instructional-setting

Threatening Behavior Policy: The UA Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to one’s self, http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students

Nondiscrimination and Anti-harassment Policy: The University of Arizona is committed to creating and maintaining an environment free of discrimination, http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy

UA Smoking and Tobacco Policy: The purpose of this Policy is to establish the University of Arizona’s (University) commitment to protect the health of University faculty, staff, students, and visitors on its campuses and in its vehicles, http://policy.arizona.edu/ethics-and-conduct/smoking-and-tobacco-policy

Syllabus Changes: Information contained in the course syllabus, other than the grade and absence policies, may be subject to change with reasonable advance notice, as deemed appropriate by the instructor.
# Course Schedule

<table>
<thead>
<tr>
<th>DATE</th>
<th>ONE HEALTH IN-CLASS</th>
<th>ONE HEALTH ASSIGNMENTS</th>
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<tbody>
<tr>
<td>8-29</td>
<td><strong>Introduction</strong></td>
<td><strong>Readings for Next Week</strong></td>
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<td></td>
<td>Overview</td>
<td>(ALL) Davis, et al. Checklist for One Health Epidemiological Reporting of Evidence (COHERE)</td>
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<td></td>
<td>-Seminars</td>
<td>(ALL) Lebov, et al. A Framework for One Health Research</td>
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<td>-Group Discussions</td>
<td>(d2L&gt;Content&gt;One Health Overview)</td>
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<td>-Field Experiences</td>
<td>Assignment</td>
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<td>RMSF (sign up), PACC, Food Safety Field Trip</td>
<td>Prep for next week: Climate Change and Health – papers to be posted</td>
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<td>-One Health Resources</td>
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<td>-Wicked Problems</td>
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<td><strong>One Health-ville FUN!!</strong></td>
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*Goals by the end of Class:* Create 5 groups of 3 – ID Presentation – Identify the pathogen you want to present on

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<thead>
<tr>
<th>9-5</th>
<th><strong>Climate Change and Health</strong></th>
<th><strong>Assignment:</strong> Online communications by topic areas to start brainstorming ideas for your Wicked Problems project.</th>
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<tbody>
<tr>
<td>KPB</td>
<td>Dr. Mona Arora and Erika Austhof</td>
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<td></td>
<td><strong>GROUP DISCUSSION</strong> (for 30 pts participation points, not to be used for discussion points)</td>
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<tr>
<th>9-12</th>
<th><strong>Wicked Problems Project and ID Presentation Work Day</strong> – Dr. Ellingson will be there to lead the groups and answer any questions you may have.</th>
<th>Start working on semester long group project!</th>
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<tbody>
<tr>
<td>KPB</td>
<td><strong>Goals by the end of the class:</strong> (1) Work towards finalizing your ID Presentation for 9/26 (2) Start an outline of your Wicked Problems group project (15 pts) – this is due 9/26 in-class. Each group will present their outline for class feedback.</td>
<td>Work with your group to break down your disease of choice into the three One Health components. Refer to ‘A Framework for One Health Research’ by Lebov et al. to determine some best practices for setting up your project. Read all materials related to RMSF (d2L&gt;Content&gt;Rocky Mountain Spotted Fever)</td>
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<tr>
<th>9-19</th>
<th><strong>ROCKY MOUNTAIN SPOTTED FEVER ROUND UP</strong> Field Experience 1 – spots available Mon-Fri this week (ALL DAY COMMITMENT)</th>
<th><strong>TIME CHECK</strong> – if you haven’t finished at least 1 seminar by now, get to it!</th>
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<tr>
<td><strong>RMSF THIS WEEK!</strong></td>
<td><strong>25pts/write-up</strong></td>
<td>Watch TedTalk: Canaries in the coal mine</td>
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<tr>
<th>9-26</th>
<th><strong>One Health and Infectious Diseases</strong></th>
<th><strong>PODCAST (complete by Oct 3)</strong> Maryn McKenna Big Chicken Parts 1 &amp; 2</th>
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<td>Each group presents to the class (15 min each: use slides for this one) – 50pts</td>
<td><strong>Readings for Next Week (Read by Oct 3)</strong></td>
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|        | Group Presentation of Wicked Problems outline due (15 pts) - Check-in 1 | Group 1: Tirado et. al. 
Group 2: Yun et. al. 
Group 3: Rosenberg, et. al. 
Group 4: Garcia et. al |
|        | **Write 3-5 questions for panel discussion & submit on D2L Discussion Board – THE GROUP DISCUSSION FOR THIS TOPIC WILL NOT BE UNTIL OCT 10TH!!! Questions must be posted by Monday Oct 7th)** | (See ‘Questions to consider when presenting an article for One Health d2L>Content>Journal Presentations) |

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<thead>
<tr>
<th>10-3</th>
<th><strong>Food Safety and Security</strong></th>
<th><strong>TIME CHECK</strong> – if you have not finished at least 2 seminars by now, get to it!</th>
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<tr>
<td></td>
<td>Overview and Case Study - KPB</td>
<td><strong>25pts/write-up</strong></td>
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<td>One Health and Food Safety in America’s Salad Bowl (ie Yuma, AZ) – Dr. Paula Rivadeneira, PhD</td>
<td><strong>Readings for Next Week</strong></td>
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<td>Food Safety Regulation – A Multidisciplinary Endeavour Dan Engeljohn, PhD</td>
<td>Articles to be posted on D2L</td>
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<tr>
<th>10-10</th>
<th><strong>Role of Economics in One Health Challenges</strong></th>
<th><strong>Readings for Next Week</strong></th>
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<tr>
<td>Date</td>
<td>Event Description</td>
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<td>10-17</td>
<td><strong>GROUP DISCUSSION #1</strong>&lt;br&gt;Human-Animal Interaction&lt;br&gt;Class at Pima Animal Care Center (PACC)&lt;br&gt;4000 N Silverbell Rd, Tucson, AZ 85745&lt;br&gt;*We will carpool there together. Please meet on the east side of Drachman by 12:45. If you plan to drive separately, please let KPB know in advance.&lt;br&gt;The staff at PACC will present information on their community programs and changes they are making. We will also be doing a tour of the facility (kittens!).&lt;br&gt;&lt;br&gt;Readings for Next Week&lt;br&gt;Decker et. al. Pets for Life Study&lt;br&gt;Patroneck et. al. Factors Associated with High Live Release&lt;br&gt;&lt;br&gt;VIDEO&lt;br&gt;<a href="https://www.ted.com/talks/barbara_natterson_horowitz_what_veterinarians_know_that_doctors_don_t?language=en">https://www.ted.com/talks/barbara_natterson_horowitz_what_veterinarians_know_that_doctors_don_t?language=en</a></td>
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<td>10-24</td>
<td><strong>GROUP DISCUSSION #2</strong>&lt;br&gt;Occupational One Health – Peter Rabinowitz, MD, MPH – University of Washington&lt;br&gt;&lt;br&gt;Readings for Next Week&lt;br&gt;Pandemic Flu exercise – ON FRIDAY 10/25 from 2-4:30&lt;br&gt;Participation counts for one of your two IPEs and one of the required AHSC IPEs&lt;br&gt;&lt;br&gt;VIDEO&lt;br&gt;Bill Gates</td>
<td>The next outbreak&gt; We’re not read&lt;br&gt;<a href="https://www.ted.com/talks/bill_gates_the_next_disaster_we_re_not_ready?language=en">https://www.ted.com/talks/bill_gates_the_next_disaster_we_re_not_ready?language=en</a></td>
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<tr>
<td>10-31</td>
<td><strong>GROUP DISCUSSION #3</strong>&lt;br&gt;Antibiotic Resistance and Stewardship&lt;br&gt;Dr. Kate Ellingson – AMR Project with LTC Facilities&lt;br&gt;Panels&lt;br&gt;(Dr. Jean McLain, Dr. Kate Ellingson, Dr. Arun Dhar)&lt;br&gt;Wicked Problems Project&lt;br&gt;In class Q&amp;A&lt;br&gt;&lt;br&gt;Readings for Next Week&lt;br&gt;TIME CHECK – Peer Review of WP paper (you decide the best process…you can keep it within your team or swap with another team. One Health is all about multi-disciplinary teams so it’s important to learn how to write papers as a team as well)&lt;br&gt;15pts – assessed by submitting a version of the paper with track changes and comments&lt;br&gt;&lt;br&gt;Write 3-5 questions for panel discussion &amp; submit on D2L Discussion Board</td>
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<td>11-7</td>
<td>One Health as a Path for Global Health&lt;br&gt;Dr. Aminata Kilungo&lt;br&gt;&lt;br&gt;Readings for Next Week&lt;br&gt;Keep writing!</td>
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<td>11-14</td>
<td>Global Health Security – Dr. Saskia Popescu&lt;br&gt;&lt;br&gt;Readings for Next Week&lt;br&gt;TIME CHECK – Submit Draft of WP paper to KPB over D2L – due by Sunday Nov 18th at 11:59pm (50 pts)</td>
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<td>11-21</td>
<td>One Health in the Future – Incorporating Genomics in One Health Research&lt;br&gt;Dave Engethaler, PhD, TGen North&lt;br&gt;Hayley Yaglom, MS TGen North&lt;br&gt;&lt;br&gt;Readings for Next Week&lt;br&gt;TIME CHECK – if you haven’t finished all 4 seminars by now, get to it! Seminar write-ups due Mon Dec 2nd 25pts/write-up</td>
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</table>
| 12-5 | Present Wicked Problem project<br>FINAL PAPER DUE DECEMBER 15th on D2L by 11:59pm<br>Finish up your paper and submit a REVISED draft based on comments.