**Citizen Science   
January 5-22, 2014**

**Matthew Deady (Section 1)**



**Homework Assignment 1 Due Monday, January 6**

Tonight (Sunday), look over the three collections of CitSci handouts you have already received, containing readings about:

* The Nature of Science
* Anti-Biotic Resistance
* Bioethics

As you read, identify one article or a set of articles that you would like to cover in this class. In class on Monday, I will ask you to write about why you are interested in those topics so that we can plan out what we will cover in our course.

**Homework Assignment 2 Due Tuesday, January 7**

1. Read the article I passed out on “Umbrellaology”. Write a short paragraph with your initial thoughts on whether or not Umbrellaology is a science.

2. Then, read *Sex, Drugs, Disasters, and the Extinction of Dinosaurs*, by Stephen J. Gould, which is in your Anthology.

3. Finally, write a few paragraphs on Umbrellaology, with a more definitive argument on whether it is in fact a science. Specifically refer to ideas in the Gould article that influenced your thinking.

**Homework Assignment 3 Due Wednesday, January 7**

1. We have a lecture tonight, at 6:30 pm in the Sosnoff Theater. Check in with me so that I know you are there. The talk is:

**Innovation Spread: Lessons from HIV**

**Presented by Kristina Talbert-Slagle**

For Wednesday morning, submit a paragraph about the talk, summarizing what the speaker presented. Then give one question you did (or would like to) ask her.

2. Start to explore the topic of your group project, both the potential diseases you discussed, what particular risk groups there are, and how you might reach them.

**Homework Assignment 4 Due Thursday, January 8**

1. We have a lecture tonight, at 6:30 pm in the Sosnoff Theater. Check in with me so that I know you are there. The talk is:

**Drinking from the Firehose: Infectious Diseases in the Age of Big Data**

**Presented by Annie Hoen**

For Thursday morning, submit a paragraph about the talk, summarizing what the speaker presented. Then give one question you did (or would like to) ask her.

2. Do a first reading of the paper

*A New Phlebovirus Associated with Severe Febrile Illness in Missouri ,*

which we will do a careful study of in class on Thursday afternoon. As you read, keep a list of terms or ideas that you do not understand so that we can figure them all out together in class.

**Homework Assignment 5 Due Friday, January 10**

1. Read these book excerpts that are in the first section of your anthology:

*Thinking Scientifically: An Out-of-Body Experience*,

by Natalie Anger (from *The Canon*)

Selections from *A Beginner’s Guide to the Scientific Method,*

by Stephen S. Carey (2 Topics: “Causation” and “Fallacies”

2. To summarize your reading, answer the Concepts Quiz on the last page of the Stephen Carey book selections. Hand in your answers to me, via email or in class on Friday morning.

**Homework Assignment 6 Due Monday, January 13**

1. Read this book excerpt and article that I passed out in class:

A chapter from *Flu*, by Gina Kolata,

*Disarming Flu* Viruses, by Laver *et al*.

2. Compile a list of unfamiliar terms or ideas, or questions you have about what these are saying about the Influenza virus. Put the entire list in your homework.

3. Choose three terms or ideas from your list, and use computer searches to find out what you can about them. Put the results of your investigations into your homework.

**Homework Assignment 7 Due Tuesday, January 14**

1. We have five research lectures by CitSci faculty this afternoon, at 1:00 pm in Olin Auditorium. For ***each*** talk, for Tuesday morning’s class, submit a paragraph about the talk, summarizing what the speaker presented. Then give one question you did (or would like to) ask her/him.

2. We have a lecture tonight, at 6:30 pm in the Sosnoff Theater. Check in with me so that I know you are there. The talk is:

**Killing Persistent *Mycobacterium tuberculosis:* Insights from Captain James Cook and Harry Houdini**

**Presented by William Jacobs**

For Tuesday morning, submit a paragraph about the talk, summarizing what the speaker presented. Then give one question you did (or would like to) ask him.

**Homework Assignment 8 Due Thursday, January 16**

1. Your presentation group should meet at least once, probably twice, over the next two days. Your target is to submit to me, by 8:00 am on Thursday morning, a detailed explanation of your project. It should include:

* The disease you will be studying.
* The at-risk group you are aiming to help.
* An outline of what information (or argument, or …) you will include in your presentation to the at-risk group.
* What format or formats you will use to present this.
* The names of all in your group, and what each will be doing.

We will discuss all the presentations later in class this week, and you will make your presentations to the entire class on the last two days of CitSci, January 21 & 22.

2. We have one final talk, Wednesday, 1/15/14, in the Sosnoff Theater,

City Farms for City Dwellers Presented by Dickson Despommier

I am not asking you to submit a summary, but I will toss out some questions for discussion in class on Thursday, so if you have one you want to contribute, bring it to class on Thursday morning.

**Homework Assignment 9 Due Friday, January 17**

1. From your anthology, read these two review articles about anti-microbial resistant bacteria and some reservoirs that they may be developing in.

Guardabassi, L., Schwarz, S., & Lloyd, D. (2004). Pet animals as reservoirs of antimicrobial-resistant bacteria. *Journal of Antimicrobial Chemotherapy*, *54*, 321-332.

Rolain, M. (2013, June). Food and human gut as reservoirs of transferable antibiotic resistance encoding genes. *Frontiers in Microbiology, 4(173),* 1-10.

As is common in review articles, each paper concludes with a call for gathering more data. For each paper, write a paragraph explaining:

* What problems they are trying to understand better,
* What indications there are that these pose a danger to humans,
* What types of further data they would like collected,
* Comment on their recommendations in comparison with the conclusions of the IFT Expert Panel report that I pointed you to today.

2. In preparation for our watching the movie *Contagion* on Friday, listen to this story from the NPR show RadioLab, called *Patient Zero* (summary below).

The part I want you to hear is the first 40 minutes or so of it, which is all about infectious diseases. The rest of it is about social ideas and how they spread (the high five, cowboy hats, …) which you may want to hear for enjoyment, but it’s not immediately related to our study.

<http://www.radiolab.org/story/169879-patient-zero/>

**Homework Assignment 10 Due Monday, January 20**

You have a second session of faculty talks on Monday, January 20, in Olin Auditorium, from 9:00 am – Noon.. There will be 6 talks, with a short break in the middle.

* Choose two talks, one from the first half and one from the second half.
* By 5:00 pm on Monday, January 20, email one question you would ask the speaker, for the two talks you chose.

**Homework Assignment 11 Due Tuesday, January 21**

1. Before we watched *Contagion*, I assigned you a character in the movie.   
Be prepared to discuss a decision or action that character took, and whether you think it was right or not, and why.

2. Read the two articles by Paul Ewald:

*Guarding Against the Most Dangerous Pathogens,* and

*The Emergence of Virulence*

3. Listen to Paul Ewald’s TED talk:

[*http://www.ted.com/speakers/paul\_ewald.html*](http://www.ted.com/speakers/paul_ewald.html)or

[*http://www.ted.com/talks/paul\_ewald\_asks\_can\_we\_domesticate\_germs.html*](http://www.ted.com/talks/paul_ewald_asks_can_we_domesticate_germs.html)

4. Drawing from this reading and the TED talk, write a **two-page essay** about the dangers of new pathogens emerging and his suggested strategies to use evolution as part of the solution.

Essay format: Roughly 2 pages in length (600-700 words), typed, with double spacing or at least 1.5 line spacing, with enough margin room for my comments.

Print it out and hand it in, no email versions.

Give the paper a title of your own devising, and include a complete bibliography of your sources, including the Paul Ewald sources you used.

Due at the beginning of class, 10:00 am, on Tuesday, January 21.