*Infectious Diseases – Final Project Spring 2012*

Over the course of this semester, we have touched on many of the diverse topics involved in the study of infectious disease. However, there is no way to cover everything, so your final project is designed to allow you to research one area that you found interesting and would like to look into further that we simply did not have time to go over in class. Your final project will be in the form of a research paper, PPT or Prezi and abstract (short) presentation to be completed individually. Your final product must apply science information from class – either the biology of the disease organisms, epidemiological principles, lab work or immunology: The purpose is to show that you now have a deeper understanding of infectious disease and can apply it to other aspects of its study. You must also include information from current research/journals relevant to your topic.

The following is a list of possible topics to help get you started. Guidelines for your papers and for the presentation will follow.

You may wish to study infectious disease as it relates to:

1. **A country** – Haiti for example. Or another developing country which is attempting to deal with ID. What diseases must they deal with, what are the obstacles to this, who is working on it?
2. **A person** – Paul Farmer, for example, whose work in Haiti and Peru is described in Tracy Kidder’s biography Mountains Beyond Mountains. Louis Pasteur is another possibility in this category.
3. **A book –** examples include: The Hot Zone or Demon in the Freezer – true accounts.
4. **Nocosomial Infections** – hospital acquired infections
5. **Zoonoses** – Animal Hosts/Animal vectors
6. **Biological Warfare/Bioterrorism**

a. How have ID been used in warfare historically? Who, what, when, where, why and how?

OR

b. What are the threats for ID use by armies or terrorist groups in the future? Who, what, where, why and how?

1. **Global Warming -** What infectious diseases are associated with climate change/global warming?
2. **DNA Technology and/or Gene Patenting –** Genes can be patented and so can an antibody. What are the laws and ethics involved – study and report on cases that have set precedents in this area.
3. **Travel/urbanization and emerging diseases**
4. **Evolution –** the coevolution of ID to their hosts. Diseases specific to certain species or families of organisms.
5. **History** - how did the advent of agriculture and domestication of animals change the face of ID.

- 1918 flu, Bubonic plague

1. **Illegal or legal trafficking in exotic animals.** There is a huge amount of illegal trade in importing animals. Investigate this subject and the rules and regulations surrounding the importation of animals. What diseases are spread in this way – to native animals and or humans?
2. **Technology and the tracking/study of infectious diseases**

Example: Networking and use of data to track worldwide outbreaks

1. **The economics of fighting ID’s.**

You may consider 3rd world countries and how they pay for health care OR pharmaceutical companies and the economics of vaccine or antibiotic development.

1. **Research the MHC system which allows our bodies to identify ‘self’**. How does it work, why is it important? Do Inf pathogens use this for their own purposes and would it be possible for us to tinker with it to aid in our own defenses? Look into ongoing research.
2. One of the issues in all ID movies/books is the **panic** that sets in when an outbreak occurs. What measures should be used to avoid/deal with such situations. Does our government have a plan for this and what is involved? Is it realistic/reasonable/workable? Is it local/regional/national??/
3. How **can we harness the uniqueness of ID pathogens for our benefit**? One example is the use of viruses as delivery systems for gene therapy. What research is going on and what different kinds of approaches are being taken?
4. **What ID plague out pets**? What is being done or should be done, AND are humans at risk from them? Consider domestic and imported pets.
5. **Watch the second Dengue fever lecture on the laboratory work Harris’ lab is doing** and report on progress in her lab or others on dengue.
6. **Your own idea???**

Please make your choice by Thursday. I will expect a brief outline by Friday 5/4 which will be an in class work day. You will be expected to research your topic and elaborate on at least 3 aspects of it in terms of ID. Project will be worth 15% of your semester grade.

General grading rubric for PowerPoint, Paper or Prezi:

100 points:

10 - Intro/Conclusion

20 – discussion/explanation 1

20 - discussion/explanation 2

20 - discussion/explanation 3

10 – Thoughtful analyses on your part of the topic. Show me that you have thought about this issue or topic and present your considered opinion or conclusions. Use what you have learned!

5 – Organization and written/visual presentation

5 – References – MLA format – no web addresses!

10 – Presentation to class of SHORT abstract summarizing what you studied and highlighting the major points. Full points for inclusion of short (no more than 5 slides – make each one really count!) PowerPoint/Prezi - slides showing visuals and only major ideas/terms – no sentences!! (5 minutes plus questions).