**BIOLOGY OF INFECTIOUS DISEASE – BIOL 3090**

**Spring 2014**

**Note: The course will be for 4 credits, and includes a required discussion section.**

**Course Content and Philosophy**

This course is designed to introduce you to **the rich biology of infectious disease** and how it impacts on the biology of ALL organisms. It is NOT a course on human infectious disease, nor a preparation for medical school. The course will cover basic principles (see course outline below) using examples from plants, animals and humans to about an equal degree.

There is no text for the course.

Because of this,

**ATTENDANCE AT LECTURE AND DISCUSSION IS REQUIRED –** For lecture, you will be asked to sign in via a clicker (please make sure you bring one to class), but valid reasons for absence (e.g. interviews, sickness) will be accepted on an honor basis. In other words you do not have to ask permission or get a doctor's note, but you should explain your absence from class, and we will keep a record of those absences.

Come to lecture on time!! You will get treated to disease poetry, music and movies

After each lecture, **I will make my lecture notes available on Collab**. I will **also try** **and post the lecture before class**, but I am a last minute person, so check online for the latest version just before class.

If you want to review the material ahead of time, I suggest looking on Collab for the lecture notes for Spring 2013; they will be in the same vein, unless (as I do sometimes) change a lecture considerably or change the topic.

**My office hours** will be Fri 1.15-2 pm, and Wed 2-2.45 pm, in Room 051 Gilmer Hall, at the back of the lab. If you cannot make these times, suggest a time by e-mail. Only Tues and Thurs afternoons, and Fri 12-1 and Monday 4-5 are usually not possible.

My e-mail is [ja8n@virginia.edu](mailto:ja8n@virginia.edu), my phone is (434) 243 5076 (not a good way to reach me), and my office is Room 051 Gilmer Hall, at the back of the lab.

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# Course outline and syllabus

Week

14-Jan Tues 1 Intro, and History of infectious disease

16-Jan Thurs 1 What is disease, how common is it, and who gets it?

21-Jan Tues 2 I. Viruses

23-Jan Thurs 2 II. Bacteria

28-Jan Tues 3 III. Protozoa

30-Jan Thurs 3 IV. Helminths

4-Feb Tues 4 V. Nematodes and Fungi

6-Feb Thurs 4 Transmission

11-Feb Tues 5 Host-pathogen dynamics I. Disease epidemiology

13-Feb Thurs 5 Host-pathogen dynamics II. Population effects

18-Feb Tues 6 Host-pathogen dynamics III. Regional effects

20-Feb Thurs 6 Pathogenesis and principles of resistance

25-Feb Tues 7 Resistance in bacteria, insects

27-Feb Thurs 7 Special Lecture, Dr. Betsy Arnold, U. of Arizona

4-Mar Tues 8 EXAM I

6-Mar Thurs 8 Resistance in plants

MID SEMESTER BREAK

18-Mar Tues 9 Vertebrate immune system I

20-Mar Thurs 9 Vertebrate immune system II

25-Mar Tues 10 Genetics of resistance

27-Mar Thurs 10 Host-pathogen coevolution

1-Apr Tues 11 Antibiotic resistance

3-Apr Thurs 11 Vaccination

8-Apr Tues 12 Disease and the evolution of genetic systems I

10-Apr Thurs 12 Disease and the evolution of genetic systems II

15-Apr Tues 13 Molecular epidemiology

17-Apr Thurs 13 Influenza evolution

22-Apr Tues 14 Disease of diseases

24-Apr Thurs 14 Host-shifts and the emergence of new diseases

29-Apr Tues 15 EXAM II

**DISCUSSIONS**

ALWAYS contact your TA if you are going to be absent or miss a discussion class, in order to get assigned work.

Discussion will

(1) go over questions about the lectures, esp. as there is no text,

(2) discuss the readings,

(3) give homework exercises/readings, and

(4) later in the course it will help you with the major project (research on a particular disease). Instructions on all these things will be given during discussion

The general format of a discussion section will be:

(a) Quiz or materials to be handed in

(b) Any questions from lecture

(c) Discussion of readings, of exercises, of homework

(d) Assignments for the following week.

Later in the semester, the discussion sections will introduce you to how to conduct library and data base searches on a specific disease, and how to present the results as posters.

**Your discussion leader is PRIMARILY YOUR MENTOR!! Contact them with questions about lecture, etc.** If you e-mail questions to them or to me, we may share answers by e-mail with the rest of the class – rarely is something you are uncertain about unique to you. Nor is uncertainty or curiosity any kind of indictment of your abilities – quite the reverse – it means you are thinking and participating!!

**HELP**

Do bring questions about the lectures to the discussion sections. If you want to get INDIVIDUAL help, or discuss something one-on-one, e-mail your TA or myself for an appointment.

**TEXT**

There is NO text for the course.

However, on most weeks REQUIRED READINGS will be assigned that amplify/explain the lecture material. **If your biology background is limited, I strongly recommend that you get a basic biology text.** Also remember the value of the web (e.g. Wikipedia is great for fundamentals, even if it has its ups and downs).

**GRADE**

The grade is based on discussion section assignments (30%), and two exams (30%, 40%). I will post previous exams so you can see the kind of questions you are likely to get.

**UVA COLLAB**

All readings and class materials will be posted on Collab. Slides in lectures will be numbered for easy reference**.**