Overview of Course

This course is an introduction to the many interactions between insects, other arthropods and humans that result in disease, ranging from simple anxiety, phobias, discomfort and pain, to transmission of pathogenic organisms causing sickness and even death. Included will be an understanding of the special physical and chemical adaptations of insects that enable them to cause us harm. The major groups of insects, mites, ticks and related arthropods associated with human suffering and disease as well as an introduction to the diseases transmitted by them will be presented. Finally, the course will present information on how major outbreaks of disease transmitted by insects have influenced human populations, demographics, warfare, religion, and societal structure throughout recorded history.

Course Prerequisites

There are no pre-requisites for this course.

Overview of Learning Goals

Students will be able to:

1. Recognize the groups of insects and other related arthropods that negatively impact human health and be able to explain the specific ways in which they do so.

2. Describe the special adaptations of insects that allow them to cause physical and chemical injury to humans and identify ways in which these injuries can be prevented.

3. Discuss how and why epidemics of insect transmitted diseases occur.

4. Describe the major diseases transmitted by insects including the pathogens involved, their symptoms, their insect vectors, their reservoir hosts, their geographical distributions, their historical and current status and importance, and how they are or can be managed.

5. Discuss the roles that medically important insects and the diseases associated with them have played in the history of mankind relative to human demographics, population growth and reduction, nationalities, commerce, religion, language, warfare, and the development of modern medicine.
COURSE DELIVERY AND STRUCTURE
The course will be taught entirely on-line in an asynchronous environment using the Learning Management System "Moodle" linked out to course web pages. Comprehension of narrated Power Points will be deepened through a mixture of textbook readings, other readings, quizzes, videos, discussion, projects, and other activities. The course will consist of 30 separate subject matter Units including an introductory Unit in which each student will be introduced to the use of Moodle and the various electronic technologies to be used in course delivery and participation. The syllabus is organized around a weekly schedule that will begin each Wednesday and end the following Tuesday. A typical week will cover two subject Units but this will vary from one to three in given weeks, depending on the subjects being covered. Any assignments for a given Unit will normally be due at the end of this weekly period unless otherwise indicated during the semester.

COURSE SCHEDULE

Week 1 (Aug. 18-24)
Unit 1—Introduction to Distance Learning

Week 2 (Aug. 25-31)
Unit 2—Medical Importance of Insects
Unit 3 --A Brief History of Insects and Medicine

Week 3 (Sept. 1-7) (Sept 6 is Labor Day holiday)
Unit 4--Entomology and the Diverse World of Arthropods

Week 4 (Sept. 8-14)
Unit 5--Introduction to the Orders of Insects and Other Arthropods of Medical Importance
Unit 6--Introduction to the Types of Pathogens Transmitted by Arthropods

Week 5 (Sept. 15-21)
Unit 7--Epidemiology of Arthropod Borne Diseases
Unit 8--Cockroaches (Order Blattaria) and Human Health

Week 6 (Sept. 22-28)
Unit 9--Human Lice (Order Pthiraptera)
Unit 10--The True Bugs (Order Heteroptera)
EXAM I (Sept. 24) (Covers Units 1-9)

Week 7 (Sept. 29 to Oct. 5)
Unit 11--Bees, Wasps, and Ants (Order Hymenoptera)
Unit 12--Beetles (Order Coleoptera)
Unit 13--Moths and Butterflies (Order Lepidoptera)

Week 8 (Oct. 6-12) (Oct. 7-8 is Fall Break)
Unit 14--Fleas (Order Siphonaptera), of Plague and Tapeworms
Unit 15--The Flies (Order Diptera): Part I, Moths and Sand Flies

Week 9 (Oct. 13-19)
Unit 16--The Flies (Order Diptera): Part II, Biting and Non-biting Midge
Unit 17--The Flies (Order Diptera): Part III, Black Flies  
Unit 18-- The Flies (Order Diptera): Part IV, Horse & Deer Flies

Week 10 (Oct. 20-26)  
Unit 19-- The Flies (Order Diptera): Part IV, Mosquitoes  
Unit 20-- The Flies (Order Diptera): Part VI, Muscoid Flies (House Flies & Relatives)

Week 11 (Oct. 27-Nov. 2)  
Unit 21-- The Flies (Order Diptera): Part VII, Tsetse Flies and African Sleeping Sickness  
Unit 22-- The Flies (Order Diptera): Part VIII, Myiasis – Flies that Eat People  
EXAM II (Oct. 29) (Covers Units 10-20)

Week 12 (Nov. 3-9)  
Unit 23--Ticks (Class Arachnida)  
Unit 24--Mites (Class Arachnida)

Week 13 (Nov. 10-16)  
Unit 25--Spiders, Scorpions and Solpugids (Class Arachnida)  
Unit 26--The Influence of Insects and Disease on Wars

Week 14 (Nov. 17-23)  
Unit 27--The Influence of Insects and Disease on Human Demographics  
Unit 28--Insects, Human Disease, Religion, Language and other Social Issues

Week 15 (Nov. 24-30) (Thanksgiving Vacation Nov.24-26)  
Unit 29--Forensic Entomology

Week 16 (Dec. 1-3) (Dec 3 is last day of classes)  
Unit 30--Insects, Disease and the Future – Looking in the Crystal Ball

Final Weeks  
EXAM III-Date TBA (Covers Units 21-30)

COURSE MATERIALS

Textbook  
Medical Entomology for Students - Service, Mike  
Edition: Fourth  
ISBN: 978-0-521-70928-6 paperback  
Web Link: http://www.cambridge.org/9780521709286  
Cost: Approximately $44.00 (Amazon; Barnes & Noble)  
This textbook is required.

E-reserves  
Short readings are available on e-reserves. To access e-reserves, go My Course Reserves and log in with your unity ID and password.

Need help? Call the D.H. Hill Reference Desk at (919) 515-2935 or toll free at (877) 601-0590.
Headset / Microphone
If you don't have one already you will need to order a headset or microphone / speakers. These are required in order to participate in the Elluminate office hours and the Voicethread discussions. A headset with a built in microphone is recommended as it eliminates feedback loops that may occur with speakers and microphones. You can get headsets for about $10 - $15 at a computer or office supply store or you can try one of the online stores like www.amazon.com and www.cdw.com.

EXPECTATIONS

Is this course for me?

Students should expect to spend about 8 to 10 hours per week on this course. Students must complete assignments on time. That means: quizzes, discussion board posts, projects, and any other assignments must be turned in on time. Be realistic with yourself and your time.

The good news: Because this is an online course, students have great flexibility in designing their own work schedule for the course.

The bad news: Because this is an online course, students have more responsibility to be motivated and meet deadlines. Here are some recommended work patterns:

- **Chunk it!**: Designate chunks of time in the week when you know you have good energy and when you will not have other obligations that must override the course. You might choose a 4-5 hour chunk on Wednesday evenings and then again on Monday evenings. Or you might choose chunks of 2 to 2-1/2 hours on Wednesday, Thursday, Friday, and Monday.
- **A little everyday**: Designate one consistent hour each day (say an evening hour from 8-9 or your lunch hour, or if you are an early morning riser an hour before your day begins to work on the course.

Remember! To be successful in an online course, you must devote regular chunks of time to the course, you must be disciplined, and you must engage with your fellow students and instructors.

CONTACTING THE INSTRUCTOR

James D. Harper (jdharper) - Instructor
Email: james_harper@ncsu.edu
Web Page: http://www.cals.ncsu.edu/entomology/harper
Phone: 919-515-0405
Fax: 919-515-7746
Office Location: 2103 Gardner Hall
Office Hours: TBD

Best way to contact the instructor: EMAIL. I will respond to all emails within 48 hours, often sooner during the working week.
Next best way to contact the instructor: VIRTUAL OFFICE HOURS IN ELLUMINATE
Virtual Office Hours: Monday & Thursday, 9:00am to 10:30am
Face-to-Face Office Hours: Monday & Thursday, 9:00am to 10:30am
COURSE REQUIREMENTS

This section provides you with a brief overview of the assignments. Full course assignments and assessment of assignments are listed in detail in the “Getting Started” section of Moodle.

| I.          | Participation | 10% |
| II.         | Quizzes       | 10% |
| II.         | Scrapbook Project | 10% |
| III.        | Research Paper or Media project | 10% |
| IV.         | Exam I        | 20% |
| IV.         | Exam II       | 20% |
| V.          | Exam III      | 20% |

***Describe each of the Requirements below.***

**Participation**: Participation in various activities during the semester by each student will be expected. Activities will be mediated through posting to and reading electronic bulletin boards, Voicethreads, and other technologies that will be discussed in the introductory Unit of the course.

**Quizzes**: A short, open book quiz with true/false, matching, and/or multiple choice questions will be given at the end of each of 29 course Units to aid in understanding and learning the material presented in that Unit.

**Scrapbook Project**: The purpose of this assignment is to help each student become aware of the degree to which insect associated health problems are prevalent in the world today. By requiring that each student locates contemporary information on the subject, he/she will better appreciate the prevalence of news on the subject now and throughout his or her life.

Assignment--Locate 10 different items related to insects causing disease in humans during the course, to be completed by the 14th week of the course or November 23, 2010.

Items should be from current sources in the media (TV, radio, magazines, movies, books, newspapers, cartoons, etc.) that have been generated during the current semester. For those items that can be copied, a pdf. or other type file must be generated, or a link to the same provided. These should be submitted to the instructor via e-mail or e-mail attachment so that they can be evaluated for appropriateness to the assignment, and then the student will be asked to post the article/item to the class bulletin board.

An item will be posted only once, so the first student submitting a particular item will get credit for that item. Students will be expected to read the bulletin board as it grows through the semester and discuss or ask and answer questions about the items posted. Full credit will be given for 10 appropriate entries and proportional credit for less than ten.

**Research Paper or Media Project**: The purpose of this assignment is to provide an opportunity for each student to explore a topic of relevance to the course material in more depth than is possible
during the regular presentations, to produce an organized report on the topic based on internet, library, or other media sources, and to make the report available to the class for discussion. In preparing the report, the student will be expected to evaluate the quality and accuracy of the resources and references used. The report can be prepared as a narrated Power Point presentation with accompanying text and be equivalent to a written report of 3-4 pages in length and include at least five reference citations. Each student will be expected to read or view the reports of other students and to engage in electronic discussions on each with all members of the class.

Exams I, II, & III - There will be three major examinations, each covering about one-third of the material in the course. Questions on the exams will be based on all of the material presented in the Units, including student and instructor comments on the Discussion Board, outside readings, and other activities associated with individual Units. Each of the three exams will be graded on a 100 point scale, and each will be worth 20% of the final course grade. Each exam will cover approximately one third of the course material and the final exam will not be comprehensive for the entire course. All examinations will consist of multiple choice, matching, and true-false questions and will be graded by computer. **The examinations account for 60 points total or 60% of the final grade.** Makeup exams for the 1st and 2nd exams will only be given with a well-documented excuse and must be completed within two weeks from the scheduled exam date.

### Course Evaluation

All grades will be posted in Moodle. This course uses standard NCSU letter grading.

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My policies in regard to late assignments, attendance and class participation, academic integrity, and discrimination, are as follows.

Late Assignments
Late assignments will be accepted at the instructor’s discretion and may be penalized by one letter grade for each day late. Late assignments will only be accepted under extreme circumstances such as illness or family or other emergencies. You are expected to manage your time and ensure all assignments are submitted on or before the due date.

Incomplete Grades
If an extended deadline is not authorized by the instructor or department, an unfinished incomplete grade will automatically change to an F after either (a) the end of the next regular semester in which the student is enrolled (not including summer sessions), or (b) the end of 12 months if the student is not enrolled, whichever is shorter. Incompletes that change to F will count as an attempted course on transcripts. The burden of fulfilling an incomplete grade is the responsibility of the student. The university policy on incomplete grades is located at http://www.ncsu.edu/policies/academic_affairs/grades_undergrad/REG02.50.3.php.

Attendance and Class Participation
The equivalent for attendance in an on-line course is regular participation and timely completion of assignments. The university's definition of excused absences will be applied in cases where work could not be submitted on time. See the course schedule for more details.

Academic Integrity
Students are required to comply with the university policy on academic integrity found in the Code of Student Conduct found at http://www.ncsu.edu/policies/student_services/student_discipline/POL11.35.1.php

Students with Disabilities
Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, students must register with Disability Services for Students at 1900 Student Health Center, Campus Box 7509, 515-7653. For more information, see: http://www.ncsu.edu/provost/offices/affirm_action/dss/
For the policy, see: http://www.ncsu.edu/policies/academic_affairs/courses_undergrad/REG02.20.1.php

Student Privacy
Students may be required to disclose personally identifiable information to other students in the course, via electronic tools like email or web-postings, where relevant to the course. Examples include online discussions of class topics, and posting of student coursework. All students are expected to respect the privacy of each other by not sharing or using such information outside the course.

Non-Discrimination Policy
NC State University provides equality of opportunity in education and employment for all students and employees. Accordingly, NC State affirms its commitment to maintain a work environment for all employees and an academic environment for all students that is free from all forms of discrimination. Discrimination based on race, color, religion, creed, sex, national origin, age, disability, veteran status, or sexual orientation is a violation of state and federal law and/or NC State University policy and will not be tolerated. Harassment of any person (either in the form of quid pro quo or creation of a hostile environment) based on race, color, religion, creed, sex, national origin, age, disability, veteran status, or sexual orientation also is a violation of state and federal law and/or NC State University policy and will not be tolerated. Retaliation against any person who complains about discrimination is also prohibited. NC State's policies and regulations covering discrimination, harassment, and retaliation may be accessed at http://www.ncsu.edu/policies/campus_environ or http://www.ncsu.edu/equal_op. Any person who feels that he or she has been the subject of prohibited discrimination, harassment, or retaliation should contact the Office for Equal Opportunity (OEO) at 515-3148.