

# Biology 436/536: Disease Vector Biology

Foster Hall 146

2:35 pm - 3:45 pm  
Fall 2012 Syllabus

Tuesday/Thursday

## Instructor

Dr. Immo Hansen  
Assistant Professor of Biology  
New Mexico State University  
e-mail: [immoh@nmsu.edu](mailto:immoh@nmsu.edu)



## Office

Foster Hall 263 (enter the new wing of Foster Hall via the Southwest entrance where the Minke whale is hanging climb the stairs to the second floor, turn left and go down the hallway – Room 263 is on the left). Office hours are anytime, or by appointment.

## Communication

Readings, useful websites, assignments and other materials will be accessible through the Canvas website. I will also send class-related e-mails via Canvas. Please check your e-mail on the class Canvas site regularly. I am most easily reached via my NMSU e-mail address (above).

## Required reading

Required readings are listed below and available via Blackboard. Most are also easily accessible through the NMSU library. It is critical to read the required readings thoroughly before the class in which they are discussed. You must also print out each reading and bring it with you to class. Some readings have critical color figures so try to access a color printer for these.

There is no textbook required for this course.

## Course format

This course is designed to give you an overview of recent topics in molecular disease vector biology and also to give you the background necessary for reading the primary literature.

Generally there will be lectures or student presentation of a molecular biology technique followed by a discussion of a current research paper that may be coupled with a review paper. I encourage all participants to ask questions during lectures. Electronic devices must be turned off during class hours!

## Attendance

Your attendance is required in all class sections. Students who miss class in an official University function are asked to bring the documentation to Dr. Hansen and make the necessary arrangements for work missed before your departure. Students who miss class for death in the family or serious illness must bring documentation in support of their absence (e.g. notes from doctor, etc.).

### **Student presentations**

At the second meeting of this class each student will be assigned a presentation date. The presentation will consist of a not-less than 15 min overview of a molecular biology technique. Specific topics will be chosen in consultation with me - please meet me at my office the week before your presentation.

### **Student-led discussions**

Each student will be assigned a discussion topic. Each student will schedule an appointment and meet me at my office one week before she/he is to lead the discussion. Read the discussion papers thoroughly ahead of this meeting.

You will prepare a 15 minute PowerPoint presentation on the background of your paper as well as a brief summary of the primary research paper. Then you will lead a general discussion on the research methods used, results, and conclusions. Please prepare several questions (at least three) for the class that may help to identify the major weaknesses or strengths of your paper.

All students participating in this course should prepare every week at least one question or substantive comment (positive or negative) about the assigned papers. Some questions you should ask as you read the paper are:

- What is the paper's primary objective?
- Is there a specific hypothesis?
- Are the methods appropriate?
- Are the experiments properly designed?
- How are the data analyzed?
- What are the main results and how do the authors interpret them?
- Do the data shown support the conclusions? Are there alternative explanations?
- How do these results compare with previous work in the area?
- Do they advance our understanding of this field of research?

Remember that a significant portion of your grade derives from class participation.

### **Final paper**

Individuals signed up in BIOL 550 ONLY will also write an approximately five page paper associated with their presentation topic. This paper is to be turned in at our last meeting (May 4<sup>th</sup>). Papers must be in Times New Roman, double-spaced, and 12 point font size. This paper will address some aspect of the topic that the student found of particular interest, and will include a minimum of six references drawn from primary or secondary literature (no websites).

I expect each student to submit her/his own original work! Intentional or unintentional plagiarism will result in failure of the class.

### **Exams**

There will be three exams during the course of the semester. Exam questions will be short answer in format and will include problem-solving and discussion. They will cover material presented in lectures and during discussions. An unexcused absence will result in failure of that exam.

### **Withdrawals**

It is the responsibility of the student to complete the necessary paperwork to withdraw from the class should they decide to do so. The deadline to drop with a W is October 11<sup>th</sup>.

**Grading**

Your final grade will be determined by the points you accumulate on the different parts of the course.

	<u>BIOL 436</u>	<u>BIOL 536</u>
Leading paper discussion	20%	10%
Exam 1, 2	50%	50%
Final Exam	30%	20%
Final Paper		20%

**Changes to the syllabus**

I reserve the right to modify the syllabus depending upon the interests and performance of the class.

**Disabilities and Accommodations**

Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) covers issues relating to disability and accommodations. If a student has questions or needs an accommodation in the classroom (all medical information is treated confidentially), contact:

Trudy Luken

Student Accessibility Services (SAS) - Corbett Center, Rm. 244

Phone: 646.6840 E-mail: [sas@nmsu.edu](mailto:sas@nmsu.edu)

Website: [www.nmsu.edu/~ssd/](http://www.nmsu.edu/~ssd/)

**Discrimination**

NMSU policy prohibits discrimination on the basis of age, ancestry, color, disability, gender identity, genetic information, national origin, race, religion, retaliation, serious medical condition, sex, sexual orientation, spousal affiliation and protected veterans status.

Furthermore, Title IX prohibits sex discrimination to include sexual misconduct, sexual violence, sexual harassment and retaliation.

For more information on discrimination issues, Title IX or NMSU's complaint process contact:

Gerard Nevarez or Agustin Diaz

Office of Institutional Equity (OIE) - O'Loughlin House

Phone: 646.3635 E-mail: [equity@nmsu.edu](mailto:equity@nmsu.edu)

Website: <http://www.nmsu.edu/~eeo/>

Date	Topic
Aug. 23 <sup>rd</sup> Thursday	<ul style="list-style-type: none"> <li>• <b>Introduction</b></li> <li>• Assignment of paper topics for Biol536</li> </ul>
Aug. 28 <sup>th</sup> Tuesday	<ul style="list-style-type: none"> <li>• <b>Lecture 'Diseases transmitted by insects – an overview Part 1'</b></li> </ul>
Aug. 30 <sup>th</sup> Thursday	<ul style="list-style-type: none"> <li>• <b>Lecture 'Diseases transmitted by insects – an overview Part 2'</b></li> </ul>
Sept. 4 <sup>th</sup>	<ul style="list-style-type: none"> <li>• <b>Lecture 'Insect Internal and External Anatomy, Systematics, and Metamorphosis'</b></li> <li>• Assignment of presentation and discussion topics</li> </ul>
Sept. 6 <sup>th</sup>	<ul style="list-style-type: none"> <li>• <b>Lecture 'Molecular Endocrinology of disease-transmitting insects'</b></li> </ul>
Sept. 11 <sup>th</sup>	<ul style="list-style-type: none"> <li>• <b>'Malaria – fever wars' Movie &amp; discussion Part 1</b></li> </ul>
Sept. 13 <sup>th</sup>	<ul style="list-style-type: none"> <li>• <b>'Malaria – fever wars' Movie &amp; discussion Part 2</b></li> </ul>
Sept. 18 <sup>th</sup>	<ul style="list-style-type: none"> <li>• <b>Exam I</b></li> </ul>
Sept. 20 <sup>th</sup>	<ul style="list-style-type: none"> <li>• <b>Lecture 'Insect diuresis'</b></li> </ul>
Sept. 25 <sup>nd</sup>	<ul style="list-style-type: none"> <li>• <b>Lecture 'Salivary glands and saliva of vectors'</b></li> <li>• <b>536 paper draft due</b></li> </ul>
Sept. 27 <sup>th</sup>	<ul style="list-style-type: none"> <li>• <b>Student presentation</b></li> <li>• <b>Student-led discussion</b></li> </ul>
Oct. 2 <sup>nd</sup>	<ul style="list-style-type: none"> <li>• <b>Lecture 'Insect immunity Part I'</b></li> </ul>
Oct. 4 <sup>th</sup>	<ul style="list-style-type: none"> <li>• <b>Student presentation</b></li> <li>• <b>Student-led discussion</b></li> </ul>
Oct. 9 <sup>th</sup>	<ul style="list-style-type: none"> <li>• <b>Lecture 'Insect immunity Part II'</b></li> </ul>
Oct. 11 <sup>th</sup>	<ul style="list-style-type: none"> <li>• <b>Student presentation</b></li> <li>• <b>Student-led discussion</b></li> </ul>
Oct. 16 <sup>th</sup>	<ul style="list-style-type: none"> <li>• <b>Lecture 'Insect olfaction'</b></li> </ul>
Oct. 18 <sup>th</sup>	<ul style="list-style-type: none"> <li>• <b>Student presentation</b></li> <li>• <b>Student-led discussion</b></li> </ul>
Oct. 23 <sup>th</sup>	<ul style="list-style-type: none"> <li>• <b>Exam II</b></li> </ul>
Oct. 25 <sup>th</sup>	<ul style="list-style-type: none"> <li>• <b>Lecture "Insecticide resistance"</b></li> </ul>
Oct. 23 <sup>rd</sup>	<ul style="list-style-type: none"> <li>• <b>Lecture 'Vector genome projects'</b></li> </ul>
Nov. 1 <sup>st</sup>	<ul style="list-style-type: none"> <li>• <b>Student presentation</b></li> <li>• <b>Student-led discussion</b></li> </ul>
Nov. 6 <sup>th</sup>	<ul style="list-style-type: none"> <li>• <b>Lecture 'Vector nutrition and storage proteins'</b></li> </ul>
Nov. 8 <sup>th</sup>	<ul style="list-style-type: none"> <li>• <b>536 final paper due</b></li> </ul>
Nov. 13 <sup>th</sup>	<ul style="list-style-type: none"> <li>• <b>Student presentation</b></li> <li>• <b>Student-led discussion</b></li> </ul>
Nov. 15 <sup>th</sup>	<ul style="list-style-type: none"> <li>• <b>Student presentation</b></li> <li>• <b>Student-led discussion</b></li> </ul>
Nov. 20 <sup>th</sup>	<ul style="list-style-type: none"> <li>• Thanksgiving holiday</li> </ul>
Nov. 22 <sup>nd</sup>	<ul style="list-style-type: none"> <li>• Thanksgiving holiday</li> </ul>
Nov. 27 <sup>th</sup>	<ul style="list-style-type: none"> <li>• <b>Lecture 'Transgenic insect techniques'</b></li> </ul>
Nov. 29 <sup>th</sup>	<ul style="list-style-type: none"> <li>• <b>Student-led discussion</b></li> </ul>
ec. 4 <sup>th</sup>	<ul style="list-style-type: none"> <li>• <b>Exam III</b></li> </ul>
Dec. 6 <sup>th</sup>	<ul style="list-style-type: none"> <li>• <b>Student presentation</b></li> <li>• <b>Student-led discussion</b></li> </ul>
Dec. 11 <sup>th</sup>	<ul style="list-style-type: none"> <li>• No meeting</li> </ul>
Dec. 14 <sup>th</sup>	<ul style="list-style-type: none"> <li>• <b>Final exam 3:30p.m. -5:30p.m.</b></li> </ul>