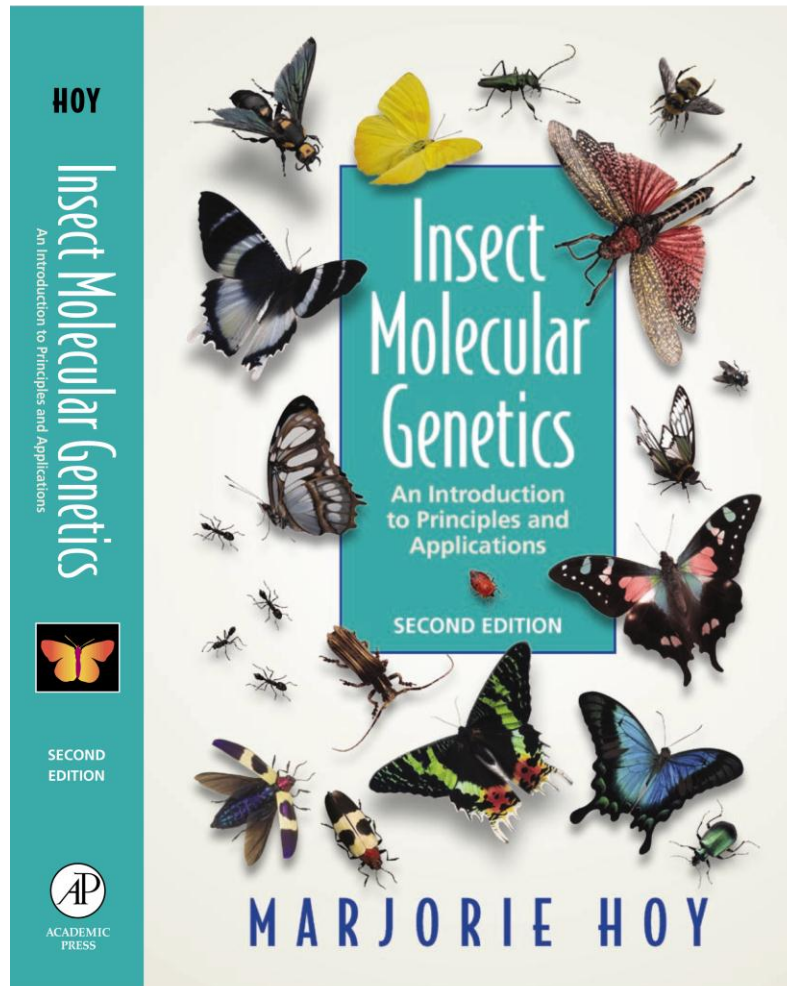


Insect Molecular Genetics

3 units, ENY 5820



Course Goals

You will learn the basic terms and concepts associated with genetic manipulation of insects and the use of molecular genetic methods to solve problems in entomology involving sex determination, insect behavior, systematics, ecology, and transformation of pest and beneficial insects. The course will enable you to identify literature for additional study on specific topics.

General Description

The course emphasizes the fundamental concepts behind several molecular methods, such as the polymerase chain reaction (PCR), cloning, sequencing, genomic libraries and Southern and Northern blots, to answer interesting questions of interest to entomologists. The course is organized into three components and is intended to provide people with little previous experience in molecular genetics with an introduction to concepts, terminology and applications of these powerful tools.

Part I. Review of basic information on DNA, RNA, transcription, translation, overview of genetic principles and terminology and overview of insect genome organization.

Part II. Overview of major molecular genetic techniques, emphasizing principles, including use of restriction enzymes, cloning, genomic and cDNA libraries, DNA sequencing, genetic modification of *Drosophila* using P-element mediated transformation methods.

Part III. Use of these techniques to understand sex determination, insect behavior, insect ecology, insect systematics, and the application of transformation methods to management of pest insects. The literature is reviewed and information provided on sources of additional information.

Credits and Format

3 credits. Powerpoint slides and study questions are provided to each student to use in studying the chapters in the assigned text.

Students are expected to read the assigned chapters, answer the study questions provided prior to attending class (except for Distance Ed students), and to participate in any discussions. Students are expected to take all examinations.

Reading Assignments

The reading assignments are in the second edition of *Insect Molecular Genetics*. This book can be purchased. Alternatively, copies of this book will be placed in the Graduate Secretary's office in Gainesville for use by students on campus. The text is recommended, but not required. Books can be purchased online at Amazon.com or at Gainesville bookstores.

Examinations

Two midterm examinations (25%) and a comprehensive written final examination (50%). Proctors are required for students taking the closed-book examinations by distance education or by polycom at the RECs.

Exam Make-Up Policy

Examinations may be made up only with advance permission or an excuse from a doctor or the infirmary. Extenuating personal situations include a death or serious illness of an immediate family member. **CALL PRIOR TO THE EXAMINATION.** Leave a message on my telephone at: 352-273-3961 or email me at mahoy@iufl.edu.

Grades

In accordance with a Faculty Senate resolution passed December 2006, minus grades are an option beginning Summer A, 2009. The revised grading options apply to all undergraduate and graduate courses. **For more information go to: <http://www.isis.ufl.edu/minusgrades.html>**

Course Grade Mean Total %

95-100	A
90-94	A-
87-89%	B+
83-86%	B
80-82	B-
77-79%	C+
73-76%	C
70-72	C-
67-69%	D+
63-66%	D
60-62	D-
Below 60	

Office Location and Office Hours

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Email: mahoy@ifas.ufl.edu, Phone: 352-273-3961; Fax: 392-0190. I will have office hours by appointment.