DRAFT
Syllabus for General Entomology
AL/BI 345 - Fanuchanan 2021

Aubrey Moore

August 18, 2021

Contents

1. Place and Time

Labs and lectures will take place in ALS 124, which is the teaching lab in the Agriculture and Life Sciences Building.

- Lectures: Mondays and Wednesdays, 12:45 - 2:05
- Labs: Wednesdays 2:20 - 5:15

2. Instructor and Contact Information

Dr. Aubrey Moore

- Cell phone: 686-5664 (Please feel free to call at any time.)
- Office: 735-2086
- Email: aubreymoore@triton.uog.edu
- Office: 105H ALS
- Office hours: by appointment

3. Course Description (from the UoG Catalog)

This course is an overview of insect biology with emphasis on fundamental problems encountered by insects, and the structural and functional adaptations used to overcome these problems. The laboratory focuses on insect identification. An insect collection is required. The course meets for three hours of lecture weekly. Prerequisites: BI157-157L or AL109 or AL281.

4. Required Text Book

Borror, D. J. and R. E. White 1970. A Field Guide to Insects. Houghton Mifflin ISBN 0-395-91170-2.

5. Curricular Mapping

5.1. Institutional Learning Objectives (from the UoG Catalog)

Some of the expected fundamental knowledge, skills, and values that the University of Guam student will have demonstrated upon completion of any degree are:

1. Mastery of critical thinking and problem solving
2. Mastery of quantitative analysis
3. Effective oral and written communication
4. Understanding and appreciation of culturally diverse people, ideas, and values in a democratic context
5. Responsible use of knowledge, natural resources, and technology
6. An appreciation of the arts and sciences
7. An interest in personal development and lifelong learning

5.2. Program Learning Objectives (from the UoG Catalog)

5.2.1. Learning Objectives for Agriculture Students

Disciplinary Knowledge: Graduates apply their agricultural knowledge and skills in the production of agricultural products using best management practices and addressing locally important issues such as island pocket economies, conservation, invasive species and endangered species problems. They use their knowledge and understanding of scientific concepts to diagnose and solve problems in agricultural fields.

1. Quantitative Skills: Graduates apply numerical methods in research design, financial analysis, pesticide and fertilizer application, irrigation and field setup and use computers for analysis of data and preparation of reports of results.
2. Research/laboratory skills: Graduates are competent in basic laboratory procedures and safety in the laboratory and the field. Students will develop applied thinking skills to help them formulate testable hypotheses and create effective experimental designs.
3. Communication Skills: Graduates can gather and assess evidence and use it to create effective lab and scientific reports, and oral presentations. They will develop the ability to identify, summarize and effectively communicate current issues to given audiences.

4. Technological Literacy: Graduates are competent at applying technological skills to their chosen work. They are also competent in the use of analog and digital equipment used in modern agricultural systems. Graduates effectively judge the usefulness and appropriateness of existing and new technologies in their professional endeavors.

5. Professionalism: Graduates work effectively together in teams in laboratory, community and field settings while following ethical principles in analysis and communication. Graduates apply their gained knowledge in addressing natural resource and social issues.

5.2.2. Learning Objectives for Biology Students

Disciplinary knowledge and skills: Graduates use their knowledge and understanding of essential concepts to solve problems in ecology, genetics, molecular biology, systematics, and evolution. They can apply their biology knowledge and skills to locally important issues such as island biogeography, conservation, and endangered species problems. They apply relevant concepts from chemistry and physics to biology problems.

1. Quantitative skills: Graduates apply numerical methods in research design, and use computers for analysis manipulating and modeling biological data.

2. Research/laboratory skills: Graduates are competent in basic biology procedures and safety in the laboratory and the field; they formulate testable hypotheses and create effective experimental designs using their knowledge, understanding, and practical experience of scientific instruments.

3. Communication skills: Graduates use scientific literature and diagrams as a source of information, properly cite sources and avoid plagiarism, and create text and graphics to communicate results effectively through print and oral presentations. They collect and assess evidence and use it to create effective arguments in writing scientific reports and proposals.

4. Digital Literacy: Graduates use and process information in multiple formats via computer. Graduates are competent in the following computer skills as related to their science work: desktop competencies, word processing, presentation, and data retrieval and manipulation. Graduates effectively judge the usefulness and accuracy of external sources of information.

5. Professionalism: Graduates work effectively together in teams in a laboratory and field settings and follow ethical principles underlying scientific research and publication. Graduates understand and apply the values and limitations of scientific research in addressing public policy issues.

5.3. Student Learning Outcomes for AL/BI 345

Upon completion of AL/BI 345, General Entomology:

1. Students will be able to accurately identify any insect on Guam to the taxonomic level of Order and in most cases to Family.
2. Students will be familiar with the behavior and biology of common insects on Guam.
3. Students will know how to collect insects and preserve them as museum quality specimens with proper labeling.
4. Students will have an understanding of the importance of insects in ecosystem function.
5. Students will be aware of negative impacts of invasive species on Guam's ecosystems and economy.
6. Students will know how to find detailed information on insects in online resources and in the scientific literature.

6. Schedule

A schedule of classes and examinations is available on the home page of the course web site at https://aubreymoore.github.io/ALBI-345/output/.

A copy of this calendar is attached as Appendix A.

7. Grading

Activity	Date/Deadline	Maximum Points
Exam 1	October 3	15
Exam 2	November 7	15
Exam 3	December 12	15
Research Project - written report	December 5	10
Research Project - oral presentation	December 5	10
Insect Collection	December 12	35
Total		100

Final grades will be awarded according to this table.

Total Points	Grade
90 - 100	A
80 - 89	B
70 - 79	C
60 - 69	D
0 - 59	F

8. Course Guidelines

8.1. Course Web Site

This syllabus, all handouts and other course resources are available from the course web site at https://aubreymoore.github.io/ALBI-345/output.

8.2. Examinations

- Examinations are cummulative, meaning that you may be asked questions on any topics covered between the start of the course and the date of the exam.
- All exams are 'open book' and you are free to use digital devices and online resources.
- Part of each exam will be spent identifying insect specimens.

8.3. Research Project

- Research projects will be done by teams of 1, 2 or 3 people.
- Each team will make an oral presentation to propose their project during the October 10 lab period.
- Each team will submit a written research report and make an oral presentation during the November 20 lab period.

8.4. Insect Collection

- You will be required to collect and preserve at least 35 different insect species from at least ten taxonomic orders.
- Immature insects and soft bodied specimens requiring preservation in alcohol will not be accepted.

- We will use an iNaturalist project, https://www.inaturalist.org/projects/insects-of-micronesia, to record data for each specimen in the collection. I will provide software to print a catalog and pin labels using data stored in the iNaturalist database.
- Lepidoptera must have their wings spread.
- Your collection must contain two or more smaller species mounted on paper points.
- Each specimen must be identified at leased to taxonomic order and labeled properly.
- You will receive a maximum of 35 points for your collection. You will get one point for each specimen which:
  - is properly preserved (moths and butterflies spread; insects too small to pin on paper points)
  - has an observation record in iNaturalist
  - is properly labeled
- Points will not be given for duplicate specimens from the same species
- You are encouraged to collect more than 35 specimens to so that you have 35 specimens which qualify for points.

9. UOG Disabilities Policy

In accordance with the Americans with Disabilities Act (ADA) of 1990 and the Rehabilitation Act of 1973, the University of Guam does not discriminate against students and applicants on the basis of disability in the administration of its educational and other programs. The University offers reasonable accommodations for a student or applicant who is otherwise qualified, if the accommodation is reasonable, effective and will not alter a fundamental aspect of the University's program nor will otherwise impose an undue hardship on the University, and/or there are not equivalent alternatives. Students are expected to make timely requests for accommodation, using the procedure below.

9.1. ADA Accommodation Services

If you are a student with a disability who will require an accommodation(s) to participate in this course, please contact the Student Counseling and Advising Service Disability Support Services office to discuss your specific accommodation needs confidentially. A Faculty Notification letter will be emailed to me specifying your approved accommodations. If you are not registered, you should do so immediately at the Student Center, Rotunda office #5, sssablan@triton.uog.edu or ph/TTY: 735-2460, to coordinate your accommodation request.

A. Schedule for AL/BI 345 General Entomology Fanuchanan (Fall) 2021

Please see next page.

ALBI345F19

Thu Aug 22, 2019

11am - 12:20pm Lecture 01 Introduction to Entomology
Calendar: ALBI345F17
Created by: Aubrey Moore

2pm - 4:50pm Lab 01
Calendar: ALBI345F17
Created by: Aubrey Moore

Tue Aug 27, 2019

11am - 12:20pm Lecture 02: Insect Biodiversity and Taxonomy
Calendar: ALBI345F17
Created by: Aubrey Moore

Thu Aug 29, 2019

11am - 12:20pm Lecture 03: Insect Biodiversity in Micronesia
Calendar: ALBI345F17
Created by: Aubrey Moore

2pm - 4:50pm Lab 02
Calendar: ALBI345F17
Created by: Aubrey Moore

Tue Sep 3, 2019

11am - 12:20pm Lecture 04: Invasion of the Land
Calendar: ALBI345F17
Created by: Aubrey Moore

Thu Sep 5, 2019

11am - 12:20pm Lecture 05: External Insect Morphology
Calendar: ALBI345F17
Created by: Aubrey Moore

2pm - 4:50pm Lab 03
Calendar: ALBI345F17
Created by: Aubrey Moore

Tue Sep 10, 2019

11am - 12:20pm Lecture 06: Internal Insect Morphology
Calendar: ALBI345F17
Created by: Aubrey Moore

Thu Sep 12, 2019

11am - 12:20pm Lecture 07: Metamorphosis
Calendar: ALBI345F17
Created by: Aubrey Moore

2pm - 4:50pm Lab 04
Calendar: ALBI345F17
Created by: Aubrey Moore

ALBI345F19

Tue Sep 17, 2019

11am - 12:20pm Lecture 08: Insects Orders with Complete Metamorphosis 1
Calendar: ALBI345F17
Created by: Aubrey Moore

Thu Sep 19, 2019

11am - 12:20pm Lecture 09: Insects Orders with Complete Metamorphosis 2
Calendar: ALBI345F17
Created by: Aubrey Moore

2pm - 4:50pm Lab 05
Calendar: ALBI345F17
Created by: Aubrey Moore

Tue Sep 24, 2019

11am - 12:20pm Lecture 10: Insects Orders with Incomplete Metamorphosis 1
Calendar: ALBI345F17
Created by: Aubrey Moore

Thu Sep 26, 2019

11am - 12:20pm Lecture 11: Insects Orders with Incomplete Metamorphosis 2
Calendar: ALBI345F17
Created by: Aubrey Moore

2pm - 4:50pm Lab 06
Calendar: ALBI345F17
Created by: Aubrey Moore

Tue Oct 1, 2019

11am - 12:20pm Lecture 12: Taking to the Air
Calendar: ALBI345F17
Created by: Aubrey Moore

Thu Oct 3, 2019

11am - 12:20pm Lecture 13: Exam 1
Calendar: ALBI345F17
Created by: Aubrey Moore

2pm - 4:50pm Lab 07
Calendar: ALBI345F17
Created by: Aubrey Moore

Tue Oct 8, 2019

11am - 12:20pm
Lecture 14: 14 Predator-prey relationships and biological control
Calendar: ALBI345F17
Created by: Aubrey Moore

ALBI345F19

Thu Oct 10, 2019

11am - 12:20pm Lecture 15: 14b Invasive Species 1
Calendar: ALBI345F17
Created by: Aubrey Moore

2pm - 4:50pm Lab 08
Calendar: ALBI345F17
Created by: Aubrey Moore

Tue Oct 15, 2019

11am - 12:20pm Lecture 16: 14c Invasive Species 2
Calendar: ALBI345F17
Created by: Aubrey Moore

Thu Oct 17, 2019

11am - 12:20pm Lecture 17: 14d Insect Population Dynamics 1
Calendar: ALBI345F17
Created by: Aubrey Moore

2pm - 4:50pm Lab 09
Calendar: ALBI345F17
Created by: Aubrey Moore

Tue Oct 22, 2019

11am - 12:20pm Lecture 18: 14dd Insect Population Dynamics 2
Calendar: ALBI345F17
Created by: Aubrey Moore

Thu Oct 24, 2019

11am - 12:20pm Lecture 19: 14e Applied Entomology 1
Calendar: ALBI345F17
Created by: Aubrey Moore

2pm - 4:50pm Lab 10
Calendar: ALBI345F17
Created by: Aubrey Moore

Tue Oct 29, 2019

11am - 12:20pm Lecture 20: 14f Applied Entomology 2
Calendar: ALBI345F17
Created by: Aubrey Moore

Thu Oct 31, 2019

11am - 12:20pm
Lecture 21: 14g Impact of Climate Change on Coconut Rhinoceros Beetle Outbreaks in the Pacific
Calendar: ALBI345F17
Created by: Aubrey Moore

2pm - 4:50pm Lab 11
Calendar: ALBI345F17
Created by: Aubrey Moore

ALBI345F19

Tue Nov 5, 2019

11am - 12:20pm Lecture 22: 15 Insect Ecology - Semiochemicals

Calendar: ALBI345F17
Created by: Aubrey Moore

Thu Nov 7, 2019

11am - 12:20pm Lecture 23: Exam 2

Calendar: ALBI345F17
Created by: Aubrey Moore

2pm - 4:50pm Lab 12

Calendar: ALBI345F17
Created by: Aubrey Moore

Tue Nov 12, 2019

11am - 12:20pm Lecture 24: Guest Lecture

Calendar: ALBI345F17
Created by: Aubrey Moore

Thu Nov 14, 2019

11am - 12:20pm Lecture 25: Guest Lecture

Calendar: ALBI345F17
Created by: Aubrey Moore

2pm - 4:50pm Lab 13

Calendar: ALBI345F17
Created by: Aubrey Moore

Tue Nov 19, 2019

11am - 12:20pm Lecture 26: 16 Insect Ecology - Insect Population Dynamics

Calendar: ALBI345F17
Created by: Aubrey Moore

Thu Nov 21, 2019

11am - 12:20pm Lecture 27: 17 Insect Ecology - Pollination

Calendar: ALBI345F17
Created by: Aubrey Moore

2pm - 4:50pm Lab 14

Calendar: ALBI345F17
Created by: Aubrey Moore

Tue Nov 26, 2019

11am - 12:20pm Lecture 28: 18 Applied Entomology

Calendar: ALBI345F17
Created by: Aubrey Moore

ALBI345F19

Thu Nov 28, 2019

All day Thanksgiving

Thu Nov 28, 2019
Calendar: ALBI345F17
Created by: Aubrey Moore

Tue Dec 3, 2019

11am - 12:20pm Lecture 29: 19 Mimicry

Calendar: ALBI345F17
Created by: Aubrey Moore

Thu Dec 5, 2019

11am - 12:20pm Lecture 30: 22 Economic Entomology and Pest Control

Calendar: ALBI345F17
Created by: Aubrey Moore

2pm - 4:50pm Lab 15: Research Reports

Calendar: ALBI345F17
Created by: Aubrey Moore

Tue Dec 10, 2019

11am - 12:20pm Lecture 31: 23 Urban Entomology

Calendar: ALBI345F17
Created by: Aubrey Moore

Thu Dec 12, 2019

11am - 12:20pm Lecture 32: Exam 3

Calendar: ALBI345F17
Created by: Aubrey Moore

2pm - 4:50pm Lab 16: Hand in Insect Collections for Grading

Calendar: ALBI345F17
Created by: Aubrey Moore