Course Goals

After completing this course, you should be able to:

Apiary Pest Control

- Discuss how to deal with apiary pests outside the bee hives.
- Identify methods that you can use to reduce the pressures of bee predators, such as ants, bears, skunks, mice, hornets, yellow jackets, and others.

Assembling Hive Equipment to Last

- Practice assembling Langstroth hives and frames using proper techniques.
- Recognize methods for reducing damage from water and use in hive equipment.

Becoming a Better Consumer of Science

- Discuss the 'good' and 'bad' ways that scientific discovery is communicated.
- Identify where to find relevant information in a published scientific article.
- Recognize the process of the scientific method.

Beekeeper Resources and Citizen Science Initiatives

- Recognize national and state honey bee and pollinator resources.
- Identify honey bee and pollinator conservation programs and citizen science initiatives
- Discuss how you can participate in research and data collection.

Beekeeping Equipment

- Identify the parts and functions of a Langstroth hive.
- Describe the functions of key beekeeping items including a smoker, hive tool, and personal protective equipment.
- Comfortably manipulate beekeeping tools and equipment

Beekeeping in Paraguay

- Recognize how beekeeping in Paraguay differs from U.S. beekeeping.
- Identify the role of African honey bees in South American beekeeping.

Biogeography of Honey Bees

- Name the nine species of honey bees.
- Identify which stocks of honey bees are present in the United States.
- Differentiate between a race and a stock.

Business of Beekeeping, The

- Recognize the various ways that you can turn beekeeping into a business.
- Identify the operational differences between various beekeeping businesses.
- Consider the obstacles to scaling up your beekeeping operation.

Catching and Hiving Swarms

- Describe the various methods used to catch a honey bee swarm.
- Identify the types of lures that can be utilized in swarm trapping.
- Discuss the steps required to successfully hive a swarm.

Collecting and Studying Pollen

- Discuss how and why honey bees collect pollen.
- Recognize how and why you can collect pollen from your colonies.
- Identify how you can interpret pollen to better understand your bees.

Cottage Food Laws in Florida

- Recognize the rules surrounding bottling, selling, and labeling honey and other hive products under the Florida Cottage Food Laws.
- Identify how you can use the Florida Cottage Food Laws to your advantage in small scale honey production and sales.

Development of a Rearing System for *Varroa*

- Recognize the impact of rearing *Varroa* in the lab on control options.
- Discuss new and upcoming research in the honey bee industry.

Florida Honey Bee Plants

- Identify the plants used by honey bees to produce honey in Florida.
- Recognize the bloom seasons of Florida honey plants.

Form and Function of the Honey Bee

- Identify the internal and external morphology of honey bees.
- Associate the physiology of honey bees to the specific functions that they carry out.

History of Beekeeping, A

- Recognize how working with honey bees has evolved from honey hunting to modern beekeeping.
- Discuss how Floribeekeeping in Florida has responded to increased honey bee stressors.

Honey Bee Basics

- Identify the functions of each honey bee caste in the colony.
- Recognize the stages of honey bee development from egg to adult
- List the resources that honey bees collect from out of the hive.

Honey Bee Nutritional Research

- Recognize how pollen patties are used within the honey bee colony.
- Discuss new and upcoming research in the honey bee industry.

Honey Bee Nutrition

- Indicate the nutritional needs of honey bees.
- Interpret trends in nectar and pollen dearths in Florida.
- Determine when a colony is low on food resources.
- Recognize that most colonies need to be fed at certain times of the year.

Honey Bee Viruses

- Identify the names and symptoms of viruses that frequently impact honey bees.
- Explain the steps you can take to reduce virus spread in your apiary.

Honey Extraction

- Determine when honey can/should be extracted from a colony based on season and hive conditions.
- Observe and practice the process of extracting honey from frames.

How to Work a Colony

- Identify the key attributes to look for when working your colony.
- Recognize how to correctly move through a honey bee colony.

Identifying Honey Bees via morphometric Features

- Recognize how honey bee wings can be used to identify species and subspecies of honey bees.
- Discuss new and upcoming research in the honey bee industry.

Installing Your First Colonies

- Identify the pros and cons of using a package or a nuc for a new hive.
- Recognize the steps required to hive a package.
- Recognize the steps required to move bees from a nuc to a full hive.
- Discuss the ways in which a newly installed hive must be cared for.

Integrated Pest Management and Varroa

- Define Integrated Pest Management.
- Relate IPM to the management of *Varroa* in honey bee colonies.
- Describe the limitations of IPM adoptions in apiculture.

Introduction to Honey Bee Pests and Diseases

- Identify the signs of the most common honey bee pests: *Varroa destructor* (and associated viruses), small hive beetle, wax moth.
- Recognize the prevention/control options for common honey bee pests.

Making Splits

- Practice the steps of splitting a colony.
- Identify the possible problems you could encounter when making a split.

Marketing Your Hive Products

- Consider what message you give to your customers when they see your products.
- Recognize ways to help optimize your honey and hive products sales.
- Identify what content you legally must include on certain product labels.

Mechanical Controls of Honey Bee Pests

- Recognize methods of managing secondary honey bee pests using physical means.
- Practice using mechanical controls of small hive beetles and wax moths in a hive.

Molecular Markers for Apis Species Identification

- Recognize how honey bee genetics can be used for Apis species identification.
- Discuss new and upcoming research in the honey bee industry.

Native Bees of Florida

- Discuss the various types of pollinators found in Florida
- Recognize the importance and diversity of Florida's wild bee species.
- Describe the biology and life history of major bee groups.

Plants for Bees

- Identify Florida flowering plants that provide good resources for bees.
- Evaluate plant attractiveness to bees based on general plant traits.
- Understand best management practices for planting and maintaining pollinator/bee gardens.

Protecting Bees from Pesticides

- Discuss how toxicity and exposure effect how bees may be impacted by pesticides.
- Identify ways that all pesticide users can reduce the likelihood of bee exposure to pesticides.

Putting Your Camera to Use in the Apiary

- Discuss tips on how to capture beautiful images of honey bees in your hives and out foraging.
- Identify ways to incorporate photography into your honey bee management practices.

Queen Care Techniques

- Differentiate between "good" and "spotty" brood patterns.
- Explain common queen care techniques: clipping and marking.
- Recognize when to requeen a colony.

Rendering Wax

- Observe the process of collecting wax from hive frames.
- Recognize the various methods of processing harvested beeswax.
- Identify the numerous ways in which wax can be made into products.

Rules and Regulations of Keeping Bees in Florida

- Recognize the importance of mandatory apiary registration in Florida.
- Identify the rules surrounding apiary location and maintenance in Florida.
- Discuss how recent rule changes may affect your beekeeping operation.

Small Hive Beetles

- Identify the lifecycle of small hive beetles in the honey bee colony.
- Recognize the various types of treatments available for small hive beetles.
- Identify how and when to use common small hive beetles treatments in your colonies.

Sociality of Honey Bees

- Identify the different types of sociality among bees.
- Discuss the characteristics of eusociality.

Synergistic Effects of Pesticides on Honey Bees

- Recognize the impacts of pesticides on honey bees.
- Discuss how different combinations and formulations of pesticides can change how a compound impacts honey bees.
- Discuss new and upcoming research in the honey bee industry.

Understanding and Controlling Swarming

- Identify the factors that can stimulate a colony to swarm
- Recognize five ways to help prevent honey bee swarming such as, provide adequate brood space, equalize colonies, create splits, clip queens, and requeen.

***Varroa* Biology and Control**

- Identify the lifecycle of *Varroa destructor* in the honey bee colony.
- Recognize the various types of treatments available for *Varroa* including chemical, mechanical, and cultural.
- Identify how and when to use common *Varroa* treatment/control products in your colonies.

***Varroa* Monitoring**

- Discuss the importance of regular monitoring for *Varroa*.
- Practice the two most effective techniques for monitoring *Varroa* in your colonies.
- Interpret *Varroa* counts and recognize treatment thresholds in your colonies.