UF / IFAS
HONEY BEE RESEARCH AND EXTENSION LAB
ENTOMOLOGY AND NEMATOLOGY DEPARTMENT

18th Annual

Bee College Spring 2025

CHECK OUT THE 2025 BEE COLLEGE VENDOR AND INFORMATION BOOTHS!

Bees Beyond Borders

Florida State Beekeepers Association

Florida Department of Agriculture and Consumer Services

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University of Florida

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Florida AgrAbility
Cultivating Accessible Agriculture

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TABLE OF CONTENTS

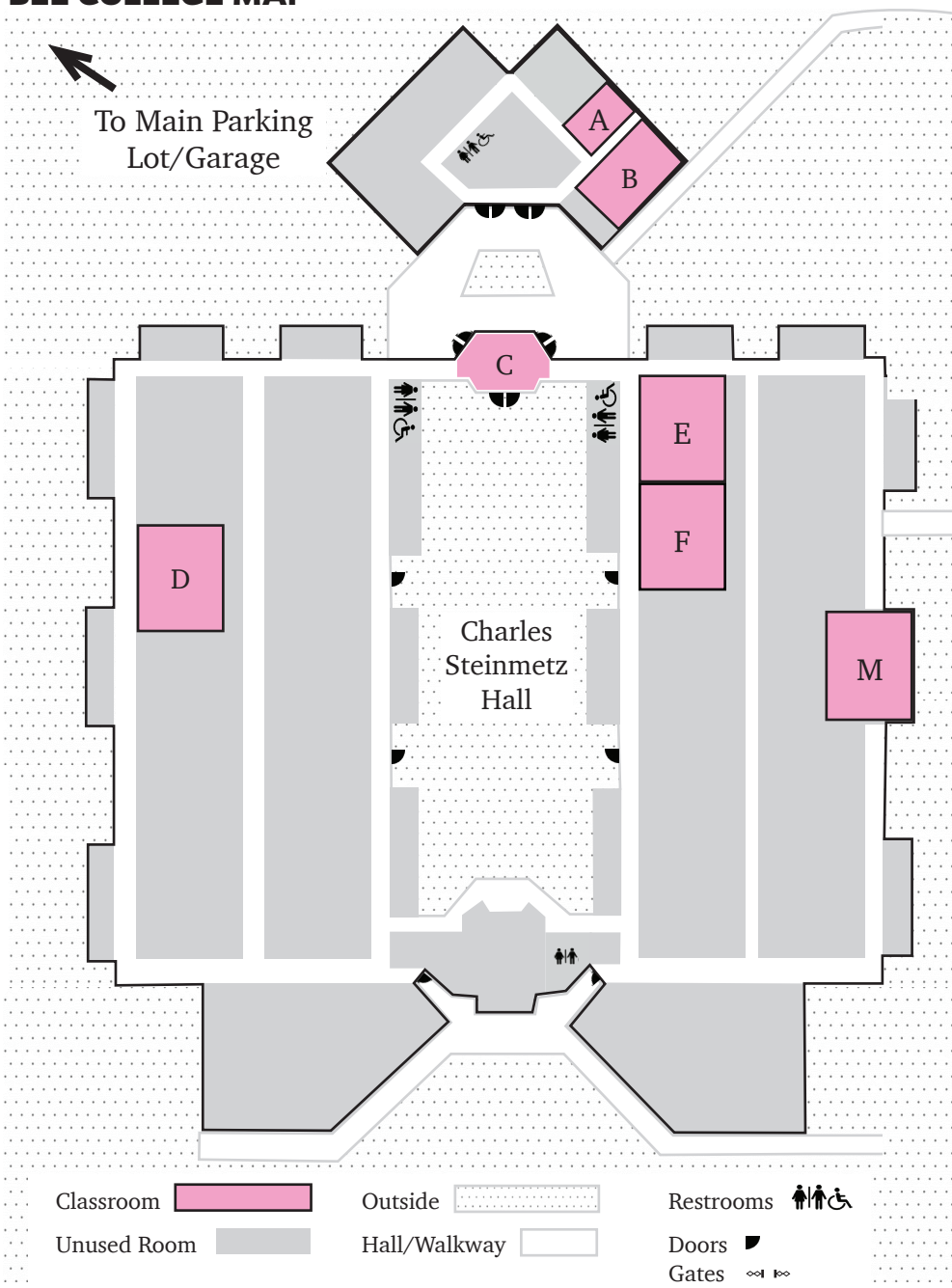
WELCOME TO THE 18TH ANNUAL UF/IFAS SPRING BEE COLLEGE!

The University of Florida's Institute of Food and Agricultural Sciences warmly welcomes you to the beautiful city of Gainesville for Bee College! Hosting this event for you is always a highlight of our year, and we are sincerely honored to share our facility with you for a wonderful weekend of beekeeping. Each year we develop new scientific discoveries and implement innovative beekeeping methods that we cannot wait to share. We hope you come away from this experience with new information, a few new friends, and an even greater appreciation for honey bees. Thank you from all of us here at the UF/IFAS Honey Bee Research and Extension Laboratory, and welcome to our 2025 Spring Bee College!

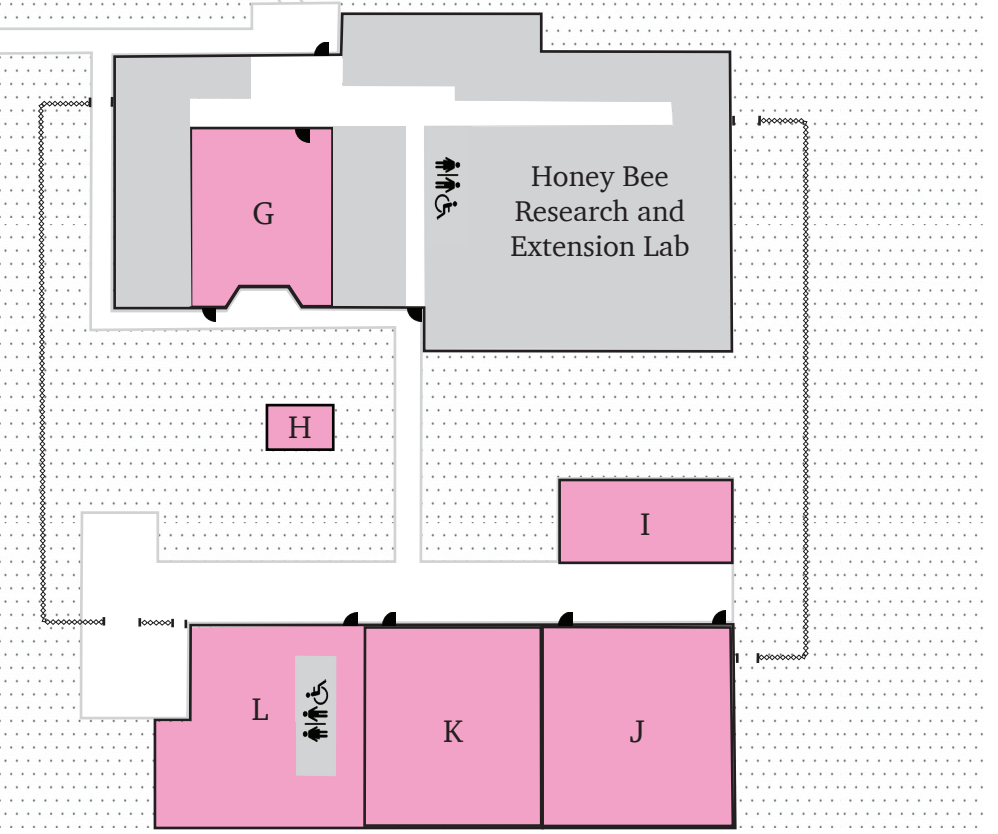
Some Reminders:

- **Please refrain from approaching a hive without a staff member present. Veils (at minimum) MUST be worn any time you are approaching a hive.**
- **Look at the schedules available at registration to determine which classes will best help you in your beekeeping journey. During each time slot, you will have plenty of classes to choose from!**
- **Refer to the "Course Goals" in this program to help you determine which classes best suit your needs and interests.**
- **Notice the "Color Key" hexagon shapes above the schedules. Classes are color-coded by topic to help you quickly choose which ones to take.**
- **Refreshments will be available throughout the event.**
- **You are welcome to attend our Friday evening dinner social! Tickets are available on Eventbrite at our registration page. Don't forget to tag us @UFHoneyBeeLab or #UFHBREL on social media!**

BEE COLLEGE MAP



A. - Room 1027
B. - Room 1031
C. - Steinmetz Hall Lobby (Vendors & Coffee Breaks)
D. - Lab 3118
E. - Lab 2216
F. - Lab 2218
G. - Room 105
H. - Apiary I & II
I. - Gordon Clauss Pavilion
J. - Amy E. Lohman Apiculture Center Workshop
K. - Dadant Honey Processing Facility
L. - Museum - Room 112
M. - Honey Show - Room 2106



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COURSE GOALS

After completing this course, you should be able to:

Accessible Beekeeping

- Familiarize yourself with the different hive systems and apiary design
- Gain knowledge of disabilities among the agricultural industry
- Learn how Florida AgrAbility assists beekeepers with disabilities
- Gain knowledge of assistive technologies and resources for accessible beekeeping

American Foulbrood (AFB) European Foulbrood (EFB)

- Differentiate between the signs of American and European foulbrood diseases in honey bee colonies
- Recognize the control options of the foulbrood diseases

Beekeeping Equipment

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

Bees of Thailand

- Compare the honey bee species in Thailand.
- Examine apiculture practices in Thailand.
- Discuss managed stingless bees in Thailand.

Beeswax Lip Balms

- Understand the materials and methods needed to make lip balms

Beeswax Wraps

- Recognize how beeswax wraps are made
- Explore reasons why we use beeswax wraps

Biological Control of Invasive Plants and Impacts on Honey Bees

- Understand the history of biological controls as it relates to beekeeping
- Understand how biological control works
- Understand why biological control of invasive plants is compatible with beekeeping

Chemistry in the Hive

- Learn how honey is made
- Learn how beeswax is made
- Learn the chemical makeup of honey bee venom and alarm pheromone

Clipping and Marking Queens

- List the benefits of queen handling, clipping, and marking procedures
- Handle adult bees safely without gloves or tools
- Perform precise clipping and marking procedures on adult bees

Creamed Honey

- Understand the crystallization process of honey and how it can be controlled

- Review recipes for adding ingredients to creamed honey and using it as a value-added product
- Recognize how the same honey can taste and feel different when creamed vs. liquid

CSI: Honey Bee

- Consider the steps needed to evaluate the health of a hive
- Investigate signs of potential problems
- Address the problems you might encounter while inspecting your hives

Equalizing Colonies

- Identify when frames need to be moved from one hive to another
- Understand how to move resources from one hive to another
- Understand why beekeepers equalize colonies

Financial Buzz: Essential Startup Costs for Beekeepers

- Identify the resources available to help you begin keeping honey bees
- Estimate the costs of beginning to keep honey bees
- Learn about costs of maintaining honey bees across the year
- Understand the income potential, costs, and basic regulatory requirements for selling honey and honey products

Harvesting Alternative Hive Products

- Learn how to collect and process pollen
- Understand uses for beeswax and learn the process for rendering it
- Recognize propolis and how to collect it; how to use propolis to make value-added products

History of Beekeeping

- Note the origins of beekeeping both globally and in practice
- Recognize the different types of beekeeping tested throughout history
- Understand the origin of the Langstroth hive and why it has prevailed until today

Hive Demo

- Identify five things to look for when going through a colony: queen health, colony population, food storage, signs of pests and diseases, and space availability
- Recognize how to correctly move through a colony
- Observe a beekeeper as they inspect a colony

Hives and Insulation

- Identify three heat losses not normally associated with hives and how to counteract them
- Understand the role of hive insulation in hot climates
- Understand the impact of clustering and interpret the action of the mantle in heat transfer in the cluster

Hive Ventilation

- Understand the history of top entrances
- Learn when and when not to add ventilation
- Understand the impact of open mesh floors

Honey Bath Bombs

- Learn ingredients and supplies needed to produce this hive value-added product
- Observe the process to create your own honey-infused bath bombs

How Chemicals Used in *Varroa* Control Impact Honey Bees

- Learn about the different treatments available to control *Varroa* destructor
- Discover the latest scientific findings on the impact of different treatments on colonies
- Identify practices that can reduce the risks to colonies

Honey Bee Biology

- 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 outside the hive

Honey Bee Diagnostics Lab

- Learn about FDACS DPI updates regarding the new Honey Bee Diagnostic Lab (HBDL)
- Engage with scientists and learn how the HBDL can be a part of your beekeeping management plan
- Provide feedback regarding how the HBDL could be a useful asset to your operation

Honey Bees Are Their Nest

- Understand what an extended phenotype is
- Identify at least three key interactions between the nest and honey bee
- Know why a tree is significantly different from a hive

Honey Extraction

- Determine when honey can/should be extracted from a colony
- Observe and practice the process of extracting honey from frames

How to Install Nucs and Packages

- Identify the equipment needed to install a new colony
- Observe the steps required to install a package of bees
- Observe the steps required to install a nuc into a full-sized hive

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How to Market Your Honey & Other Related Products

- Distinguish between marketing and advertising
- Learn how to stand out against others in the marketplace
- Identify small methods to make a big difference in product sales

How to Light a Smoker

- Understand the materials and methods needed to light an enduring smoker
- Light your own smoker successfully each time

How to Market Your Honey & Other Related Products

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How We Use Beekeeping to Make a Living

- Learn how to diversify hive products and services for your customers
- Learn financial tips to steadily grow your business over time, avoiding loans and large overhead costs
- Understand the quote: "Do what you love and you'll never work a day in your life"

Hurricane Preparedness

- Consider the risks associated with severe weather
- Learn strategies to prepare your apiary for severe weather

Intro to Mead Making/Mead Flavors

- Learn a brief history of mead
- Understand the role of honey quality and variety in mead making
- Learn the basics of mead making (hands-on creation of a batch)

Intro to Pests and Diseases

- Discuss how to deal with apiary and honey bee pests
- Overview common effective pest control methods
- Understand the most common and prevalent pests affecting honey bees and how to defend against them

Intro to Queen Rearing

- Recognize the optimal age of larvae to choose for grafting and understand the biology behind it
- Understand the different tools and accessories available for grafting
- View selected frames and practice grafting in a group setting

Legal Aspects of Beekeeping

- Examine state laws that govern beekeeping in Florida
- Understand how local legal issues can affect beekeeper operations
- Recognize tips from legal counsel how to NOT get sued

Leveling Up: Commercial Beekeeper Tips

- Discuss different revenue stream options beekeepers have
- Observe feeder pros and cons

Is Oxalic Acid Right for Your Bees?

- Understand the different methods of applying oxalic acid for the control of Varroa destructor
- Compare the cost, time commitment, and PPE associated with each method
- Observe a live oxalic acid vaporization demo

Making Splits

- Learn what splitting a colony means
- Practice the steps of splitting a colony
- Identify the possible problems you could encounter when making a split and how to avoid them

Mood, Brood, and Food

- Understand how to quickly assess the health of a colony
- Remember patterns in each category that can be recognized as signs
- of bee health

Mosquito Control and Honey Bees

- Determine the level of mosquito control product residues in bee matrices
- Determine the toxicity and the potential risk of mosquito control products on honey bee larvae and adults
- Learn techniques to manage mosquito control products as a beekeeper

Museum Tour

- Learn about the history of beekeeping
- Identify equipment that beekeepers may not recognize as being used in modern day beekeeping

Pollination as a Commercial Beekeeper

- Discuss differences among crops and requirements for honey bee pollination
- Learn about proper management techniques for honey bees that are pollinating
- Outline the steps to locate pollination contracts and other business aspects

Pollination Power: Role of Honey Bees in Agriculture

- Identify importance of honey bees
- Identify crops that require bees for pollination
- Talk about honey bee decline, reasons, and stats
- Provide examples of the importance of bees for crops

Next Generation of Beekeeping

- Learn about ways youth can access the wonderful world of beekeeping
- Discover what the beekeeping industry looks like from a youth who has worked directly in it
- Understand the role of the American Honey Queen and Princess in promotion of the honey industry in the United States

Q & A with Dr. J

- Ask follow-up questions from other courses taken at Bee College
- Hear from experts on questions you may have

Recognizing and Mitigating Queen Events

- Recognize the stressors of honey bees that are related to queens
- Classify the threat level of these stressors at low, moderate, or significant
- Identify the pros and cons of various requeening methods

- Order the steps of requeening with a caged queen and using a nuc

Requeening and Introducing Queens

- Become familiar with the methods of introducing queens
- Learn to recognize when a colony needs to be requeened

Research Updates

- Learn about recent and ongoing work from the UF/IFAS Honey Bee Research and Extension Lab researchers

Rules and Regulations

- Become familiar with Florida's apiary inspection program and inspection procedures
- Identify the rules and regulations for keeping bees in Florida

Salted Honey Caramels

- Recognize how to make a value-added hive product to diversify your sales
- Learn the ingredients and process of making honey-based candy

Scaling Your Business: Backyard to Wholesale

- Learn ways to scale your business from hobby to wholesale
- Discuss regulations for cottage food and wholesale
- Participate in an open dialogue about where to find resources to help grow your business

Seasonal *Varroa* Control

- Recognize the various cultural, mechanical, and chemical control options for *Varroa* during different seasons
- List the three main synthetic chemicals used to manage *Varroa*
- Indicate the general effectiveness of various *Varroa* control options

Structural Bee Hive Removals

- Understand the core differences of structural vs. exposed bee hives
- Recognize the importance of why the process and documentation matters
- Key points on completing a structural bee hive removal

Ten Mistakes Beekeepers Make

- Review common mistakes and misconceptions that new beekeepers struggle with - and how to avoid them

Transitioning from Hobbyist to Commercial

- Explore the various levels of beekeeping careers: hobbyist, sideliner, commercial, and retail/packer
- Learn about various income sources for beekeepers
- Recognize the components of a 5-year beekeeping business plan

Urban Beekeeping

- Learn about differences between beekeeping conditions in urban vs. rural or ag designated lands
- Understand ways to market and sell hive products to direct consumers in urban settings
- Identify ways urban beekeeping contributes to food system accessibility and security

Using a Pitfall Trap to Control Small Hive Beetle

- Learn about Integrated Pest Management for small hive beetles in hives
- Identify when and ow to use a “pitfall trap” to combat SHB
- Engage in a question/answer session on small hive beetle issues

***Varroa* Biology**

- Order the steps of the *Varroa* life cycle
- Differentiate between *Varroa* reproduction in drone brood and worker brood
- Identify the major components of *Varroa* anatomy
- Recognize the damage that *Varroa* inflicts on honey bees

***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

Vespa velutina

- Discuss how *V. velutina* poses a significant concern to the beekeeping industry
- Highlight key characteristics and biology to identify and distinguish *V. velutina* from other native hornets/wasps
- Learn available resources for reporting possible *V. velutina* sightings

Why Keep Honey Bees?

- Explore reasons people become beekeepers
- Indicate the hive products used by humans today
- Learn about the benefits honey bees provide to humans

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SPEAKER BIOS

Get to know the 2025 Spring Bee College course instructors!

Dr. Lena Barascou: Barascou is a post-doctoral researcher at the UF/IFAS Honey Bee Research and Extension Lab. She is from France where she did her PhD at the University of Avignon on the assessment of pesticides' effects on honey bees. Her project at HBREL is to evaluate the non-target impacts of mosquito larvicides and adulticides to Florida honey bees (*Apis mellifera*). *lenabarascou@ufl.edu*

Pierce Barron: Barron is an undergraduate student studying Entomology and Nematology at the University of Florida. He started as a volunteer and is now a field technician at the Honey Bee Research and Extension Laboratory. His work at HBREL involves helping with the management of hives as well as research using honey bee colonies. He is passionate about honey bees and their interactions with the environment and beekeepers, as well as other species of honey bees in their native range. *barron.pierce@ufl.edu*

Glenroy Blackman: Blackman is a native "Bajan" from Barbados. He currently serves as Plant Disease Inspector in the Plant Quarantine Department of the Ministry of Agriculture for the island nation. He facilitates proper import/export of all plant materials, while combating the spread of pests and diseases. Glenroy has been beekeeping for the past 6 years and manages about 60 colonies. He produces honey and a few nucs for sale. He first attended Bee College in 2023, and he admits to being bitten by the bug. *glenroyblackman33@gmail.com*

Alicia Bronson: Bronson is 22 years old and is a seventh generation Floridian. She holds a degree in Molecular and Cellular Biology from Stetson University in Deland, FL. At Stetson, Alicia joined Dr. Rosylyn Crowder's cancer research team where her focus was on finding new ways to treat human Jurkat Leukemia using Florida native plant extracts. In December she presented at the Cell Bio 2024 National Conference in San Diego, California. More importantly, Alicia's true passion is honey bees. As a first-generation beekeeper, she became involved in beekeeping through the Florida 4-H when she was only 11 years old, and she now maintains her own apiary in Kissimmee, FL. Alicia's future plans are to pursue graduate degrees and ultimately perform biomedical research on the properties of royal jelly. *albronson1@gmail.com*

Danielle Brooks: Brooks is the proprietor of The Honey Truck Company based in St. Augustine, FL. The Honey Truck specializes in small batch, artisan honeys. She is a Master Beekeeper through the University of Florida's

Master Beekeeper Program and is also a Certified Honey Judge. Her honeys were nationally recognized as a "Best of the South" brand by Southern Living and have been featured on the Today Show. Her honeys have won multiple awards at competitions across the state of Florida. She lives in St. Augustine with her husband, 2 kids, and 3 cats. *danielle@honeytruck.com*

Jason Deeringer: Deeringer was introduced to beekeeping through work in bee removal services and now has a total of 13 years beekeeping experience. He is a member of the American Beekeeping Federation, Florida State Beekeepers Association, Polk County Beekeepers Association, and keeps his finger on the pulse of statewide rules, regulations, and statutes. Deeringer currently maintains on average 2,000 colonies along with his growing bee removal service. *jasondeeringer@gmail.com*

Dr. Kaitlin Deutsch: Deutsch is a post-doctoral researcher at the UF/IFAS Honey Bee Research and Extension Lab. She is currently investigating the utility of environmental DNA (eDNA) and RNA (eRNA) in detecting emerging honey bee pests and pathogens. Prior to joining HBREL, Kaitlin completed her PhD in Entomology at Cornell University, where she studied how sustainable beekeeping practices impact virus sharing between managed honey bees and wild pollinators. She first became interested in pollinator disease ecology during her time as an undergraduate at the University of South Florida before going on to investigate viruses in hover fly pollinators as part of her MSc in Biodiversity, Conservation, and Management at the University of Oxford. *krdeutsch@ufl.edu*

Dr. Jamie Ellis: Ellis is the Gahan Endowed Professor of Entomology in the Entomology and Nematology Department at the University of Florida. At the University of Florida, Ellis has responsibilities in Extension, instruction and research related to honey bees. Regarding his Extension work, Ellis created the UF, South Florida, and Caribbean Bee Colleges, and the UF Master Beekeeper Program. As an instructor, Ellis supervises Ph.D. and master's students in addition to offering an online course in apiculture. Ellis and his team conduct research projects in the fields of honey bee husbandry, conservation and ecology, and integrated crop pollination. *jdellis@ufl.edu*

Brutz English: English is a UGA Master Beekeeper and an internationally certified Senior Honey Judge. He has served as the chairperson of the Georgia Beekeepers Association Honey Show Committee since 2015. From 2017 to 2022, English served as the program director for the Welsh Honey Judge training and certification program at the Young Harris-UGA Beekeeping Institute. He is a founding member and currently serves on the Board of the American Honey Show Training Council. English has judged over seventy state, national, and international honey shows. *brutzenglish@gmail.com*

Kiley Epperson: Epperson received her Bachelor of Science in Applied Biology from the University of Florida in 2023. She joined the Florida Department of Agriculture's Honey Bee Diagnostics Laboratory (HBDL) in the summer of 2023 and is a Biological Scientist I within the lab. HBDL uses traditional and molecular techniques to identify honey bee pests as well as viral, bacterial, and fungal pathogens of honey bees. *kiley.epperson@fdacs.gov*

Emily Flowers: Flowers is a very active 13-year-old beekeeper with membership in the Gulf County 4-H Beekeeping Club and the Gulf County Beekeepers Association. She is a fourth-generation beekeeper and bottles her own tupelo and wildflower honey. In addition to her honey "Awesome Blossom", Emily makes several honey related products, including beeswax wraps, honey bath bombs, honey lip balm, and honey candy. She is continually looking for products to create. Emily attended the 2023 Florida State Beekeepers Association Conference in Orlando where she won First in Best Tasting Honey (tupelo) in Florida and First in Best Light Extracted Honey. When Emily is not busy being an entrepreneur and beekeeper, she is a varsity cheerleader and actively involved in the 4-H livestock and horse clubs, the Baking Club, and Chick-Chain. She loves spending time at the beach and river with friends and family.

Dr. James Fulton: Fulton received his PhD in plant pathology from the University of Florida in 2021. He then joined Dr. Jeremy Brawner's lab as a Postdoctoral Associate working to develop a universal fungal enrichment sequencing platform. Afterwards, he established the Florida Department of Agriculture's first Honey Bee Diagnostic Laboratory (HBDL) in 2022. The lab employs traditional and molecular diagnostic tools to identify bacterial, fungal, and viral pathogens as well as arthropod pests. HBDL's current responsibilities include: diagnosing diseases and pests including American foulbrood, *Nosema ceranae*, Deformed Wing virus and Africanized Honey Bee as well as unidentified biotic factors contributing to disease in honey bee colonies, researching and developing novel diagnostic methods and applications, and communicating to the public honey bee health concerns. *james.fulton@fdacs.gov*

Billy Fussell: Fussell started his journey in agriculture at just 12 years old, harvesting tomatoes and packing watermelons in Central Florida. In 2008, his father introduced him to beekeeping, sparking a passion that evolved from a fun hobby to support his love of deer hunting into a thriving career in honey production and crop pollination. Today, Billy and his wife proudly run Bee Fussy Apiary, LLC, where they share their enthusiasm and expertise in beekeeping. Their dedication not only supports local agriculture but also fosters a love for bees and their vital role in our ecosystem. *beefussyapiary@gmail.com*

Dr. Serap Gorucu: Gorucu earned her bachelor's and master's degrees in Agricultural Engineering from Cukurova University, Turkey and a Ph.D. in Biosystems Engineering from Clemson University. Dr. Gorucu teaches at UF as an Assistant Professor/State Specialist for risk analysis, safety, and health of agricultural systems. She is also the Principal Investigator/ Program Director of the Florida AgrAbility program. Gorucu's research into injury surveillance helps to identify and reduce major injury hazards in agriculture, forestry, and fishing. *serapgorucu@ufl.edu*

Jennifer Hagen: Hagen is a Family and Consumer Sciences Agent for Lee County, FL. Her program areas include food systems, food safety and regulation, cottage food operations, food-related entrepreneurship, green building, and community resource development. Hagen is a LEED accredited professional and a Certified ServSafe Instructor and Proctor for the ServSafe Food Protection Manager Certification. She is passionate about bees and advancing pollinator health through education. Hagen is in the process of bringing a Master Beekeeping Program to Lee County. *jhagen@ufl.edu*

Lisa Hamilton: Hamilton has served as a UF/IFAS Extension Family and Consumer Sciences Agent in Volusia County Florida since 2015. She provides financial and housing education and counseling. Lisa is an Accredited Financial Counselor and HUD certified housing counselor. She and her husband began keeping bees in 2023 and are members of the Beekeepers of Volusia County. *hamiltonl@ufl.edu*

Mika Hardison-Carr: Hardison-Carr is an entrepreneur, educator, and urban beekeeper since 2018. Co-founder of the not-for-profit Herban Bee, Mika's efforts focus on community food security, organizing an organic garden co-op, and assisting local Nassau County families with growing and preserving food. Hardison-Carr's company is dedicated to integrating beekeeping in urban neighborhoods and exposing disadvantaged communities to agriculture. *ms.m.hardison@gmail.com*

Lindsey Head: Head has been working with Florida AgrAbility as the Case Coordinator since November 2022. She graduated from Abraham Baldwin Agricultural College in Tifton, Georgia with one bachelor's degree in Agribusiness and one in Livestock Production. Lindsey has a strong agricultural background and is passionate about assisting farmers with disabilities. *lhead3@ufl.edu*

Sara Holton: Holton and her husband, Tyler, accidentally founded their business in 2015 and started keeping bees in 2016. Sara is a third generation beekeeper who had the idea of keeping a couple of backyard hives. Those two have now turned into over 850 hives and growing every year. It is now their full time jobs.

They are migratory beekeepers who participate in California almond pollination, sell queens and nucs, teach classes, and have a large presence for honey sales in their local area of Elkhart, Iowa. theholtonhomestead@yahoo.com

Dr. Cameron Jack: Jack is an Assistant Professor in the Entomology and Nematology Department at the University of Florida. He seeks to improve the beekeeping industry through both instruction and research. Jack teaches many courses related to beekeeping and honey health, training students to become successful beekeepers and supporting the industry. Jack supports both graduate and undergraduate students with their research questions to enable others to contribute to the overall body of scientific knowledge. His primary research efforts are focused on honey bee toxicology and epidemiology. cjack@ufl.edu

Erin Jenkins: Jenkins' beekeeping heritage dates back to the 1920's as she is now the fifth generation in her family to keep bees. A visit from State Apiary Inspector, Glenn Barnett, in 2017 sparked her interest in further studies, and Jenkins complete her B.S. in Agriculture Sciences in 2021. She took a position with the FL Department of Agriculture shortly after, working as an Apiary Inspector in Central and South Florida. Still active in her family's bee business, Jenkins is passionate about addressing the needs of all beekeepers and helping them to succeed in their ventures. erin.jenkins@fdacs.gov

Lori Johnson: Johnson joined UF/IFAS Extension in 2020 as the Family & Consumer Science Agent in Lake County. She has 20 years of experience as a Registered Dietitian in public health, school, and community nutrition. In her role as an Extension agent teaching youth and adults, she trains on basic cooking skills, decreasing food waste, and healthy preparation methods for chronic disease prevention and management. Lori is a certified Serv Safe food safety manager and provides food safety education across her program area, including how to safely preserve foods at home. She empowers youth to learn the importance of nutrition, health, food preparation skills, and the science food preservation. She has spoken on the national and state level and is the recipient of several state level Family and Consumer Science and 4-H awards focused on health and wellness. lorijohnson@ufl.edu

Kaylin Kleckner: Kleckner is a PhD candidate studying wild honey bee ecology at the UF/IFAS Honey Bee Research and Extension Lab. She joined HBREL in 2018 while completing her B.S. in Entomology and Nematology. Kleckner has spent the last two years traveling to South Africa to locate and study wild honey bee colonies. She is interested in unmanaged colony nesting strategies, behavior, and relatedness. Before her PhD, Kleckner was a lab volunteer, student researcher, and field technician

participating in myriad research projects in honey bee toxicology, nutrition, and behavior. kaylin.kleckner@ufl.edu

Andrea Lazzari: Lazzari is the County Extension Director and Agriculture and Natural Resources Extension Agent for UF/IFAS Extension Indian River County. She has more than a decade of experience working in informal education, teaching both youth and adult audiences at nature centers, zoos, and, for the last eight years, with UF/IFAS Extension. Andrea holds bachelor's degrees in Zoology and Fisheries and Wildlife Management from Michigan State University and a master's degree in environmental education from Florida Atlantic University. She is passionate about translating scientific research and concepts for the public, and her current programming focuses on supporting local agricultural producers, increasing agricultural awareness, and fostering an understanding of and appreciation for natural resources. a.lazzari11@ufl.edu

Dr. Timothy Liptak: Liptak is a practicing dentist from Charleston, South Carolina and has been a beekeeper for 10 years, managing roughly 50 colonies and working part time in a commercial beekeeping setting in North Georgia. After witnessing a honey bee colony inhabiting a beloved tree in his yard, "Dr. Tim" was hooked! This obsession led to an Eastern Apicultural Society Master Beekeeper certification and working his way through a master's degree in entomology from the University of Florida. He finds beekeeping the perfect blend of art and science and really enjoys its challenges. tliptak@ufl.edu

Larry Losciale: Losciale is the owner of EML Pools and CSI Home Inspections. Larry has been keeping bees for 6 years and now manages eight hives. He came to the 2020 Spring Bee College, and the very next day he got his first bees. uruffu@yahoo.com

Anitra Mayhann: Mayhann is a UF/IFAS Extension 4-H and Family and Consumer Science Agent in Gulf County, Florida. She enjoys working with youth in her county and across the state. Gulf County, particularly Wewahitchka, is world renowned for tupelo honey. In her opinion, tupelo is the best honey in the world! Gulf County has a 4-H Beekeeping Club whose members have participated in bee activities throughout the state: selling products at the Tupelo Festival, entering painted bee boxes and beeswax wraps in the North Florida Fair, and helping 4-H members give presentations on honey judging, protecting bees, and the benefit of natural products like beeswax wraps. amayhann@ufl.edu

Alexis Masnjak: Masnjak is a PhD student at the University of Florida Honey Bee Research and Extension Lab. Her research focuses on Ascosphaera apis, the fungal pathogen responsible for chalkbrood, a disease that affects honey bee colonies. Alexis has a background in microbiology and molecular biology.

Prior to joining HBREL, she earned an MS in Biology from the University of South Florida, where her research centered on behavior and gene expression in Hymenoptera. amasnjak@ufl.edu

Doug McGinnis: McGinnis grew up in the world of honey and beekeeping. Some of his earliest memories were attending beekeeper's meetings at Randall's Wax Works in Umatilla, FL. After college and working in journalism, his parents asked him to help with their burgeoning export business. Tropical Blossom Honey Co., Inc. sold Florida honey to 22 countries around the globe and was a leader in creating honey gift items for retail outlets throughout the USA. Doug served as president of Tropical Blossom for over twenty years and was the export member of the National Honey Board for six years, five of those on the NHB Executive Committee. Now retired, Doug is a member of the Board of Trustees at the Atlantic Center for the Arts, and lectures on bees, native plants of Florida, and gardening for pollinators. He's also assisting the development of the McGinnis Museum of Beekeeping at the UF/IFAS Honey Bee Research and Extension Laboratory. doug1952@cfl.rr.com

Dr. Carey Minteer: Dr. Minteer leads research on the biological control of weeds at the University of Florida's Hayslip Biological Control Research and Containment Laboratory in Fort Pierce, Florida. Minteer is a 2012 graduate of the University of Arkansas and specializes in invasion ecology and the biological control of invasive plants. Minteer works to develop solutions for controlling the state's invasive weed problems through classical biological control and integrated pest management. Minteer is currently working to control the Brazilian peppertree, one of the state's most wide-spread invasive plant species and earleaf acacia, a species from Australia that is spreading rapidly in the state. c.minteerkillian@ufl.edu

Beth Murphy: Murphy, owner of Sweet Southern Bees, is a beekeeper and graphic designer. She has combined her love for both into an ongoing enterprise making all-natural cosmetics, sweets, candles, soaps, body scrubs, and fun activewear all incorporating the goodness of the hives. She attends the Gainesville Area Bee Club and can be found at Haile Farmers Market on Saturday mornings. bethrom@windstream.net

Dr. Derek Mitchell: Mitchell researches into the heat transfer of man-made and natural honeybee nests at the School of Mechanical Engineering of the University of Leeds (United Kingdom) where he completed his PhD with a thesis entitled "The thermofluid engineering of the honeybee nest (Apis mellifera)". He has published articles in Beecraft, Bee Culture, American Bee Journal, and Natural Honey Bee Husbandry, in addition to his published academic work in the Royal Society Journal and International Journal of Biometeorology. Derek's curiosity about this area of honey bees and heat started when Elaine, his wife, bought their first hive in 2010 and his physics and engineering training told him

what they knew about honey bees and the hives wasn't the complete story. This curiosity has resulted in his groundbreaking and often controversial research into honey bees. derek@eigentek.com

Jean Loui Navarro: Navarro is the owner of Mega Bee Rescues and Pest Control based out of Miami, FL. As a registered beekeeper in the pest management industry, Navarro strives to make a positive impact on the pest management industry by providing ethical beehive removals and relocations. He is a current member of the National Pest Management Association and is currently in the Executive Leadership Role within the NPMA. He works with the NPMA to train companies in operating successful bee removal operations and other bee services. Navarro has a strong passion to educate others on beekeeping, bee removals, and pest management. jean@megabeepestcontrol.com

Chris Oster: Oster is the Lab Manager for the UF/IFAS Honey Bee Research and Extension Lab. In this position he oversees all the day-to-day operations that help to keep the lab running including procuring materials to be used in research, coordinating between HBREL and outside vendors, coordinating volunteers, and maintaining lab equipment. Oster graduated from the University of Florida with a degree on Environmental Science, where he was introduced to honey bees through volunteering at HBREL. osterc96@ufl.edu

Joshua Packard: Packard is the beekeeper for the University of Florida Honey Bee Research and Extension Lab. He started beekeeping with two colonies in 2022 as a hobby and quickly fell in love with it. He joined the Pinellas Beekeepers Association which helped him gain the knowledge and experience to raise healthy honey bee colonies. After growing his initial colonies to 60 and starting a beekeeping business, he has joined HBREL to work towards bettering honey bee health. j.packard@ufl.edu

Louise Petit: Louise Petit is a PhD student at the University of Florida Honey Bee Research and Extension Laboratory. Introduced to HBREL as a visiting scholar during her master's in Bioengineering degree in France, she is interested in honey bee toxicology research. Her graduate project focus is on Varroa destructor control. louise.petit@ufl.edu

Devan Rawn: Rawn joined the HBREL as a Lead Field Technician in November 2022. His work focuses on research in honey bee nutrition, control of *Varroa*, and queen rearing. Rawn comes from Ontario, Canada, where he received a B.Sc. in Biology from the University of Guelph. He was previously a technician with the Ontario Beekeepers' Association Technology Transfer Program, a commercial beekeeper producing queens and honey, and has taught at Niagara College Canada's commercial beekeeping program.

Understanding honey bees in a warmer climate is a challenge is very much embracing. devan.rawn@ufl.edu

Luis O. Rodriguez: Rodriguez is the UF/IFAS Small Farms and Pesticide Education Extension Agent for Polk County, FL. He holds both a BS and MS in Animal Science from the University of Puerto Rico Mayaguez Campus. Rodriguez is responsible for the development, implementation, and evaluation of educational programs for Small Farms and Alternative Enterprises and Pesticide Applicators Training programs. His areas of specialization include animal science, small farms crop production, farm safety, small farms business development, agritourism, pesticide applicator training, Integrated Pest Management (IPM), and Green Industry Best Management Practices (GI-BMPs). His beekeeping programs focus on beginner beekeeping (both adults and 4-H youth) and honey bee biology, and he has produced several short videos about beekeeping topics. lrodriguezrosado@ufl.edu

Dan Short: Short is a professional brewer (at Daft Cow Brewery in Alachua, FL) with about 14 years of experience between homebrewing and industry. While beer has served as his foundation, his passion lies in cider and mead-making. Once Dan joined Hogtown Brewers 7 years ago (in Gainesville - now he is President), he gained knowledge in “truly great” meadmaking. Mead is now his favorite thing to make. The award-winning club has some of the top meadmakers in the country : this camaraderie and competition just furthers the innovation and quality of the local meadmaking community. Short is in the final phase of opening his own cidery/meadery. dan@sunshinecidery.com

Dr. Tatiana Sanchez-Jones: Sanchez-Jones is the Commercial Horticulture Agent for Alachua County, FL. Her major areas of work are vegetable crop production and education for professionals in the green industry. In her program, Sanchez-Jones has partnered with local beekeepers and the HBREL to offer a hands-on beekeeping series to more than 450 beginner beekeepers in Alachua and the surrounding counties. tatiana.sanchez@ufl.edu

Justin Sims: Sims had begun his PhD in Physics at Catholic University when a car accident led to seizures, brain injury, and a stroke. In 2020, after using the illustration of his children’s book about honey bees (Henry Meets a Honey Bee) as rehabilitation for the extreme weakness in his right side, Justin fell in love with beekeeping and the community. Since then, Justin has worked on research, design, and implementation of accessible hardware and software for new and disabled beekeepers while growing the non-profit, Accessible Beekeeping. Sims develops modifications that can be made for hive systems and accessible hardware, while educating the public about

honey bees and beekeeping. His“Bee My Hive Inspector”, an artificial intelligence-based application, aids new and disabled beekeepers during the hive inspection process using the camera found on a cellular phone. Justin aims to teach beekeepers that are disabled, aging, or recently injured that beekeeping can still be for you and by making adaptations be accessible to all. *jruger@accessiblebeekeeping.org*

Julia St. Amant: St. Amant is a graduate student at the UF/IFAS Honey Bee Research and Extension Laboratory. Introduced to HBREL as a volunteer, she then became the lab technician conducting honey bee research on control for *Varroa destructor* and other pests and pathogens. She graduated from the University of Florida with a Bachelor of Science in Biology, a Minor in Entomology and Nematology, and a Minor in Wildlife Ecologyand Conservation. *jstamant1@ufl.edu*

Bo Sterk: Sterk has been promoting and teaching rural beekeeping development and sustainability in the Caribbean for over 20 years. Hiswork with Haitian beekeepers has been published in Bee Culture, Bee Craft, Austalasian, Kelly Newsletter and Bees for Development magazines. He has been a keynote speaker for the L.A., Chicago, and NYC beekeepers' associations. In 2017 he was a speaker at Apimondia, the World Beekeeping Symposium in Istanbul, Turkey. He is presently the Florida delegate for American Beekeeping Federation and Co-Chair of Education. He is the founder of Bees Beyond Borders, his non-profit organization to aid rural development in the Caribbean. *123bosterk@gmail.com*

Ashley Stonecipher: Stonecipher is the Agriculture and Food Systems Extension Agent for Volusia County. She teaches classes to both the residents and the local bee club on the importance of pollinating plants and how to cover all twelve months of the year. Her Extension program focuses on honey bees and how they help farmers and the future of agriculture in crops. *ams2904@ufl.edu*

Jessica Sullivan: Sullivan has been teaching topics in horticulture and agriculture with the UF/IFAS Extension in Osceola County for 20 years. She has a B.S. in Horticulture and an M.S. in Entomology. Sullivan is a backyard beekeeper and has a passion for educating people about our valuable pollinators and their habitats. *sullivan@ufl.edu*

Amy Vu: Vu is the UF/IFAS State Specialized Extension Agent for the Honey Bee Research and Extension Lab. She oversees the University of Florida Master Beekeeper Program, the University of Florida Bee Colleges, speaker requests, media inquiries, the lab's social media pages, and is the co-host of the lab's podcast "Two Bees in a Podcast". Vu's Extension programming

focuses on honey bee health, beekeeping entrepreneurship, and working with UF/IFAS County Extension Agents. Vu has an undergraduate degree in Agronomy with an emphasis on Soils and Environmental Science and a Master's degree in Agricultural, Leadership, and Community Education from Virginia Tech. Before joining the HBREL, she worked at the University of Florida's International Center, and was Orange County Extension's urban horticulture agent and Master Gardener coordinator. amy.vu@ufl.edu

David Westervelt: A Florida native, Westervelt is an expert on beekeeping and horticulture in the Sunshine State and has been keeping bees for over 50 years. He has published many scientific and popular articles on bees and travels frequently to speak about bees. Westervelt is retired from his career as the Assistant Bureau Chief of the Apiary Inspection Section at the Florida Department of Agriculture and Consumer Services – Division of Plant Industry. germanbee5@aol.com

Marie Yanchak: Yanchak is a master's student at the University of Florida Honey Bee Research and Extension Lab. Marie has a background in commercial beekeeping and joined HBREL in 2024 after completing a B.S. in both Entomology and Agricultural Leadership & Development at Texas A&M University. Marie's graduate research with Dr. Cameron Jack focuses on optimizing current methods of oxalic acid application for the control of *Varroa destructor*.
marie.yanchak@ufl.edu

FOLLOW THE COLOR-CODED CLASSES ON THE SCHEDULE FOR THE TOPIC TRACK THAT INTERESTS YOU!

Beekeeping 101

- Beekeeping Equipment
- CSI Honey Bees
- Equalizing Colonies
- Financial Buzz: Essential Startup Costs for Beekeepers
- History of Beekeeping
- Hive Demo
- Honey Bee Biology
- How to Install Nucs & Packages
- How to Light a Smoker
- Intro to Pests & Disease
- Mood, Brood, & Food
- The Next Generation of Beekeeping
- Ten Mistakes Newbies Make
- Why Keep Honey Bees

Queens/Swarming

- Clipping & Marking Queens
- Introduction to Queen Rearing
- Making Splits
- Recognizing and Mitigating Queen Events
- Requeening and Introducing Queens

Value-Added Products

- Beeswax Lip Balms
- Beeswax Wraps
- Cold Process Soap
- Cooking with Honey
- Florida Exemptions for the Beekeeper: Cottage Food & Soap, Lotions, & Moisturizers
- Harvesting Alternative Hive Products
- Honey Bath Bombs
- Honey Extraction
- Intro to Mead Making/Mead Flavors
- Salted Honey Caramels

Varroa/Pests/Diseases

- American & European Foulbrood
- Seasonal Varroa Control
- Honey Bee Diagnostic Laboratory
- Varroa Monitoring
- Is Oxalic Acid Right for Your Bees?
- Using a Pitfall Trap to Control Small Hive Beetle
- Vespa velutina
- Varroa Biology
- How Chemicals Used in Varroa Control Impact Honey Bees

Plants/Nutrition/Pollination

- Biological Control of Invasive Plants and Impacts on Honey Bees
- Pollination Power: Role of Honey Bees in Agriculture

Business of Beekeeping

- Transitioning from Hobbyist to Commercial
- Legal Aspects of Beekeeping
- How We Use Beekeeping to Make a Living
- Scaling Your Business: Backyard to Wholesale
- Leveling Up: Commercial Beekeeper Tips
- Pollination as a Commercial Beekeeper
- How to Market Your Honey & Related Products
- Scaling Your Honey Business Beyond Cottage Food: Retail or Manufacturing Permits
- Structural Bee Hive Removals

Miscellaneous

- Accessible Beekeeping
- Beekeeping for All: Empowering Accessibility in Beekeeping
- Beekeeping in Barbados
- Bees of Thailand
- Hives and Insulation
- Hive Ventilation
- Honey Bees Are Their Nest
- Hurricane Preparedness
- Mosquito Control and Honey Bees
- Museum Tour
- Q&A with Dr. J
- Research Updates Parts I and II
- Setting Up a Farmers' Market Booth
- Urban Beekeeping

Special thanks go out to:

Honey Bee College would not be possible without the dedication, creativity, and hard work of an exceptional team. Glinda Burnett expertly managed the UF/IFAS Bee College Honey Show, serving as both Manager and Secretary, while also keeping event logistics running smoothly. Chris Oster, played a key role in supporting Honey Bee College by coordinating materials, organizing volunteers, and ensuring everything behind the scenes ran seamlessly. Randy Fernandez brought Bee College to life through stunning program design, eye-catching graphics, and the creation of this year's exclusive Bee College pin. Kay Weigel lent her artistic talents to the event, providing graphic design and program support that enhanced the experience for all. Natalie Parkell, as Bee College Program Coordinator and education specialist, ensured that every detail came together to create an engaging and enriching event.

Their passion and dedication helped make this year's Honey Bee College a resounding success!

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American Honey Show Training Council

Mission Statement

The mission of this group includes the following:

- To promote and enhance the highest standards of quality and consistency for the judging and evaluation of honeybee and beekeeping goods and products; and
- To provide for a uniform system of education, certification, and governance for the individuals interested in the judging and evaluation of beekeeping goods and products; and
- To provide education and support to individuals involved with, or interested in, the organization and administration of honey shows and exhibitions.

Calling All Bee Enthusiasts! Help the Florida State Beekeepers Association by pre-ordering the Honey Bee license plate in Florida! Scan the QR code below to access any of the county websites listed to order your voucher. It only takes 3,000 vouchers across the state to start production, so order yours online TODAY!

HELP SAVE THE BEES!

PLEASE COMPLETE THE 2025 BEE COLLEGE EVALUATION

Please visit Bee College registration for a copy of our evaluation form or a digital survey. Turn in your feedback and get our 18th Annual Bee College pin!

2025 BEE COLLEGE EVALUATION

Please provide feedback on the quality of this event:	Poor	Fair	Moderate	Good	Excellent
Overall quality of this event	⬭	⬭	⬭	⬭	⬭
Content variety	⬭	⬭	⬭	⬭	⬭
Time allotment for classes	⬭	⬭	⬭	⬭	⬭
Overall quality of courses	⬭	⬭	⬭	⬭	⬭
Speaker knowledge of subjects	⬭	⬭	⬭	⬭	⬭

Please consider these questions:	Definitely not	Probably not	Probably	Definitely	N/A
Did you learn information/gain skills at this event that you plan on using in the future?	⬭	⬭	⬭	⬭	⬭
Do you think attending Bee College will make you a better/ more successful beekeeper?	⬭	⬭	⬭	⬭	⬭
Have you applied knowledge or skills learned at a previous Bee College or UF?	⬭	⬭	⬭	⬭	⬭
Has this event helped you make more informed decisions in your beekeeping operation?	⬭	⬭	⬭	⬭	⬭

tear/cut along dotted line

Please check the topics that you gained knowledge or skills in:

- ☐ *Varroa destructor*
- ☐ Nutrition
- ☐ Queens
- ☐ Pests & Diseases
- ☐ Rules & Regulations
- ☐ Value-Added Products
- ☐ Business of Beekeeping
- ☐ Other: _____

How did you first hear about Bee College? _____

Are there any topics not covered at this Bee College that you would like to see at a future event?

_____

Additional comments: _____

_____

_____

Ask a "Two Bees in a Podcast" question here: _____