



Young Harris College / University of Georgia

# Beekeeping Institute

2019



May 22-25, 2019 • Young Harris, Georgia





*Beekeeping  
Institute*

**2019**

**This marks the 28th year of the Young Harris College / University of Georgia Beekeeping Institute.** It is our goal once a year to bring the best beekeeping educators and scientists in the English-speaking world to the mountains of north Georgia and offer our clients the best beekeeping educational event in North America.

It's also our goal to create an educational event that meets the needs of everyone, whether you're an experienced beekeeper or complete beginner. The Institute sponsors two additional and optional training opportunities - the Georgia Master Beekeeper Program and the Welsh Honey Judge Certification Program. Information about these optional programs is included in this booklet.

The Institute proper, which takes place Thursday through Saturday, consists of lectures and workshops covering a vast range of beekeeping topics. Wednesday, May 22 is dedicated to training and ex-

aminations for the Welsh Honey Judge program as well as the three highest grades of the Master Beekeeper Program - Journeyman, Master, and Master Craftsman. Training and exams for the Certified level are incorporated into the normal activities on Thursday and Friday, and classes recommended for Certified candidates are highlighted in blue. Classes are held in the Maxwell Science Center and state-of-the-art 121,000 square ft. Rollins Campus Center.

One of the most rewarding opportunities at the Institute is the annual Honey Show. Along with honey, the Honey Show accepts entries in photography, art, candles, section comb honey, mead, and beekeeping gadgets. We urge students to participate in the Honey Show, even if you've never competed before. It costs nothing extra, and it's a fun way to see how your honey compares to others'. You can find the Honey Show rules on our website, [www.ent.uga.edu/bees](http://www.ent.uga.edu/bees).



2019  
Beekeeping Institute

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### Dr. Lewis Bartlett

Dr. Bartlett is a post-doctoral fellow at the UGA Honey Bee Program and Odum School of Ecology working at the intersection of infectious disease biology and beekeeping. His research focuses on how infectious diseases, especially viruses, cause so much harm to honeybees. He is currently focused on what extrinsic factors are causing viruses to be such a problem – including long-term impacts of Varroa, pesticide exposure, migratory beekeeping, and genetic diversity of our bee stock. Lewis began keeping bees as part of scientific research and as a hobbyist in the UK before moving to America in 2016. He has worked with scientists across the UK, Europe, and USA, including University of Cambridge, University of Georgia, University of California Berkeley, Emory University, University of Ulm, and University of Exeter. His research goals are to inform solutions to managing honeybee diseases that are effective and economically viable, always with an ear toward experiences and insights from beekeepers. Lewis has worked on a range of bee parasites including most known viruses, *Nosema*, chalkbrood and stonebrood fungus, Varroa, and *Crithidia*. His published work includes studies on how insects adapt to defend themselves against diseases, the risk of pesticide exposure from spraying to control Zika-vectoring mosquitoes, and what we can expect to happen to disease transmission if we keep bees in bigger, denser apiaries.



### Dr. Wyatt Mangum

Dr. Mangum is an internationally-known, top-bar hive beekeeper. His long career began at age 10, starting with frame hives. By the time he was in high school, he had 125 frame hives and was producing honey by the ton. In 1986, this life-long beekeeper had switched to top-bar hives long before most other beekeepers knew about them. A monthly columnist for *American Bee Journal* on Honey Bee Biology, Dr. Mangum is a highly sought-after speaker for bee meetings across the US. He has lectured and worked on bees in India, Bangladesh, Bolivia, South Africa, Thailand, and Brazil. For his own bees, Dr. Mangum built a 200 top-bar hive operation and saw the bees through the terrible years when varroa and tracheal mites first came to America. Being an apicultural historian helps Wyatt avoid repeating past mistakes in beekeeping equipment design and adds a large-view perspective to his research and teaching. Dr. Mangum is also a specialist in the photography of bee behavior under difficult or delicate conditions, a talent brought to his book to produce the many rarely seen pictures. He worked out the technical aspects of using game cameras in apiaries to photograph nocturnal wildlife around the hives. The most stunning pictures are in his book *Top-Bar Hive Beekeeping: Wisdom and Pleasure Combined*.



### Dr. Francis Ratnieks

Francis Ratnieks grew up in southeast England and has a life-long interest in science and insects. He began his Biology BSc at Sussex University but dropped out. He then spent 8 years living in Ireland, initially in Co. Kerry where he made jewelry out of nails and worked on fishing boats, later enrolling in the University of Ulster where he took a BSc in Ecology and where his enthusiasm for insects resurfaced. From Ulster, he went to Cornell University where he took Masters and PhD degrees in honey bee biology and social insects at the University of California, Berkeley and Riverside, and also taught at the University of Aarhus in Denmark. In 1995 he returned to the UK, to Sheffield University, and set up the Laboratory of Apiculture and Social Insects (LASI) and became the UK's first Professor of Apiculture. In 2008 he returned to Sussex where he remains the UK's only Professor of Apiculture and head of LASI. While in the USA, he kept up to 180 bee hives making honey and comb honey, rearing queens and pollinating almonds. He is author of over 270 research articles on honey bees and social insects, including ca. 10 in *Nature or Science*, the most prestigious science journals in the world. Francis has trained ca. 20 PhD students and 20 postdoctoral researchers. He has found that the most useful things he learned at school were woodwork (for making bee hives) and algebra (for modeling social evolution). He has also found that the most useful scientific instruments are eyes and an inquiring mind, and the most important thing in a laboratory are the people.



### Dr. David Tarpy

David Tarpy is Professor of Entomology and Extension Apiculturist at North Carolina State University since 2003. As Extension Apiculturist, he maintains an apiculture web site dedicated to the dissemination of information and understanding of honey bees and their management, spearheads numerous extension projects (such as the 2005 New Beekeeper Cost-sharing program that created hundreds of new beekeepers within the state), and launched the Beekeeper Education & Engagement System (BEES) – an exciting online learning resource for knowledge and understanding of bees and beekeeping. His research interests focus on the biology and behavior of honey bee queens in order to better improve the overall health of queens and their colonies. Specific research projects include understanding the effect of multiple mating on colony disease resistance, using molecular methods to determine the genetic structure within honey bee colonies, and the determining the regulation of reproduction at the individual and colony levels. His work has provided some of the best empirical evidence that multiple mating by queens confers multiple and significant benefits to colonies through increased genetic diversity of their nest-mates, particularly through increased tolerance to numerous diseases. More recently, his lab group has focused on the reproductive potential of commercially produced queens, testing their genetic diversity and mating success in an effort to improve queen quality.



# STAFF & INSTRUCTORS



Dr. Paul Arnold is Professor of Biology at Young Harris College. He is co-founder and host of the Young Harris Institute.



Jennifer Berry is Apicultural Research Coordinator and Apiary Manager at the University of Georgia.



Bob Binnie is owner/operator of Blue Ridge Honey Company.



Dr. Kris Braman is Professor and Head of the University of Georgia Department of Entomology.



Robert Brewer is retired Towns County Extension Director and co-founder of the Young Harris Institute.



Selina Bruckner is a native of Switzerland and PhD student at Auburn University studying the toxicology of neonicotinoid insecticides on honey bees.



Mary Cahill-Roberts is a pediatric nurse practitioner and Georgia Master Beekeeper.



Bobby Chaisson has kept bees for over ten years and is a full time beekeeper with Georgia Bee Removal. Active in both MABA and GBA, he has earned his journeyman certification. Bobby is the president of Tri County Beekeepers.



Dr. Keith Delaplane is Professor of Entomology at the University of Georgia, Director of the UGA Honey Bee program, and co-founder of the Young Harris Institute.



Dr. Will Dix is a practicing physician in Athens, GA, a Fellow of the American College of Emergency Physicians, and a Georgia Master Beekeeper.



Brutz English is a Georgia Master Beekeeper, Presiding Judge for Georgia and Alabama in the Welsh Honey Judge Program, and honey show chairman for the Georgia Beekeepers Association and Young Harris Institute. Brutz was the GBA 2017 Beekeeper of the Year.



Keith Fielder is Putnam County Extension Director with the University of Georgia Cooperative Extension Service, life-long beekeeper, and widely recognized authority on bee management.



Lonnie Funderburg is a Georgia Master Beekeeper and two-term president of the Alabama Beekeepers Association.



Jack Garrison is a Research Technician at the UGA Honey Bee Lab.



Jimmy Gatt is a Certified beekeeper and board member of Metro Atlanta Beekeepers Association. He partners with Trees Atlanta to promote summer-blooming, nectar-bearing trees.



Becky Griffin is UGA's Community & School Garden Coordinator. A passionate advocate for native bees, in 2018 she was part of the UGA Trees for Bees team. Becky is coordinator of the 2019 Great Georgia Pollinator Census.



Katherine Hagan, hailing from Kentucky, is a MS student in the UGA Honey Bee program studying honey bee queen multiple mating.



Westley Hester is a Research Technician at the UGA Honey Bee Lab.



Dan Long is a Georgia Master Beekeeper, President of the Eastern Piedmont Beekeepers Association and owner/operator of Brushwood Nurseries and Tallassee Highlands Apiary.



Julia Mahood is a Georgia Master Beekeeper, graphic artist, current president of MABA, and the Georgia Beekeepers Association 2018 Beekeeper of the Year.



Tommy Mealer has been keeping bees for over 10 years and has worked rearing queens for Blue Ridge Honey Company for five years.



Wil Montgomery is a Georgia Master Beekeeper with over 40 years of experience keeping bees and rearing queens



Nicholas Weaver has been an officer for the Forsyth Beekeepers Club, apiary manager at the UGA Honey Bee Lab, and is now the lead beekeeper in Atlanta for Bee Downtown. He also performs structural removals and judges honey shows.



Lance Wilson is a Georgia Master Craftsman Beekeeper and routinely presents at the Texas Beekeepers Association's annual conventions and clinics, the North American Beekeeping Conferences, Young Harris Institute and other state conventions and seminars.





# GEORGIA MASTER BEEKEEPER PROGRAM

In 2019, the Georgia Master Beekeeper Program (GMBP) is offering qualifications at the Certified, Journeyman, Master, and Master Craftsman levels.

If you are interested in beginning this program, sign up for the **Certified exam** during the registration process and attend the conference lectures and exams on Thursday and Friday.

The certified practical exam will also be available Wednesday if you wish to leave more time for classes on Thursday and Friday. The certified level requires one year's prior beekeeping experience, passing a written exam, and passing a practical exam (practical exam has an indoor and outdoor component).

If you are sitting for exams at the Journeyman level or higher, you need to attend the sessions on Wednesday.

Wednesday's emphasis is on lectures and exams for Journeyman, Master, Master Craftsman and Welsh Honey Judge candidates. The certified practical exam will be optionally available for those who want to save time on Thursday and Friday. Only those who have registered for one of these exams and have paid the appropriate fees may attend the Wednesday lectures, audits and exams.

Certified practical exams are offered by appointment Wednesday from 1:00-5:00 p.m., all day on Thursday, and Friday morning. **There are three parts to the exams:** inside practical, outside practical (both by appointment), and a written exam on Friday from 1:20-2:10 p.m.

Applicants to any level must mark their intention on the registration form and pay the appropriate fees. Payment of fee does not guarantee a passing grade. Aspirants to all grades must meet advance requirements detailed on [our website](#). Applicants at the Certified level must have had at least one year's beekeeping experience prior to the Institute and will be asked to sign an affidavit to that effect.

Exam questions are drawn from Institute lectures, lecture notes on the website, and other sources publicly available. It is understood that applicants will bring to the exam a degree of independent and prior knowledge. Recommended reading includes Keith Delaplane's 2007 edition of *First Lessons in Beekeeping*; Mark Winston's *Biology of the Honey Bee*; Thomas Seeley's *Honeybee Democracy*; and the 2015 edition of *The Hive and the Honey Bee*.



The Welsh (UK) Bee Keepers Association partnered with the YHC-UGA Beekeeping Institute beginning in the early 2000s to develop a unique North American version of the honey testing standards employed in the United Kingdom. Compared to American standards, the UK standards are strikingly more sensory than analytical. This was the first collaboration of its kind between the USA and the United Kingdom and is expanding into sister programs in Alabama and other states. One can become a certified Welsh Honey Judge (WHJ) in one year. It takes two additional years to achieve the rank of Senior WHJ, although candidates for both levels may proceed through the certification process at their own pace.

If you wish to sit for this training, please indicate your intention on the registration form and include the appropriate fee. Questions may be addressed to program director Brutz English.

### CERTIFICATION LEVELS

- Level I (Candidate)
- Level II (Judge)
- Level III (Senior Judge)

[CLICK HERE FOR FULL PROGRAM DESCRIPTION ONLINE](#)

**QUESTIONS:** Brutz English at [brutzenglish@gmail.com](mailto:brutzenglish@gmail.com)



# WELSH HONEY JUDGE PROGRAM

### 2019 BEEKEEPING INSTITUTE HONEY SHOW

**CHAIRPERSON:** Brutz English, 770-843-2110, [brutzenglish@gmail.com](mailto:brutzenglish@gmail.com)

**ENTRY FEE:** Included in registration

**ARRIVAL TIME:** Friday, May 24, 2019;  
Entries received 7:00-10:30 am

**LOCATION:** Rollins Campus Center, 2nd floor

**JUDGING:** Friday, May 24, 2019, beginning 12:00 noon

**RELEASE TIME:** All entries will remain in the show area for public viewing after the judging. All entries will remain on display until 12:00 noon Saturday, May 25th, after which exhibitors may pick up their entries.

General rules of the honey show, exhibition classes, and judging criteria can be found [on our website](#).





### 13 Big mistakes beekeepers make

It's not just about doing things right; it's also about not doing things wrong. This class will call to your attention 13 of the most common – and easily avoided – problems – that beekeepers often overlook.

#### Apitherapy

An overview on the health benefits, biology, and application of bee hive products as an aid to human health and wound recovery.

#### Basic honey processing

Everything a beginner needs to know for removing, uncapping, extracting, and bottling honey. A hands-on workshop.

#### Basics of queen rearing

Rearing your own queens is most useful and rewarding.

#### Beekeeping history

Beekeeping has always straddled the boundary between animal husbandry and biology. Fortunately for us, the honey bee tolerates human management, but the practices we do today are the result of centuries' worth of trial and error. This lecture will overview this long and fascinating interplay between human ingenuity and the world's most fascinating insect.

#### Bee-lining: theory and practice

How can you locate wild bee colonies nesting in nature? Come learn the principles of this venerable tradition that melds art with science. One of a three-part series on bee-lining.

#### Beelining: make-your-own bee-lining box

Participants will each build their own bee-lining box. This class requires advance registration and an additional fee of \$25 to cover costs of materials. Enrollment limited to the first 40 applicants.

### Bee-lining: Live demonstration

A live outdoor demonstration of the principles of bee-lining. Open to everyone, but of special interest to those who participated in the classes on bee-lining theory and building one's own bee-lining box.



A bee-lining box

### Beekeeping with top bar hives

A growing number of beekeepers are attracted to this low-tech alternative to the standard Langstroth hive. Come learn from a world authority the ups and downs of this method of beekeeping.

#### Biology of the colony

Biology of the honey bee colony occurs at two levels – the individual bees and the colony of which they are a part. This section covers the overriding survival strategy of a colony over the course of 12 months.

#### Biology of individuals

Biology of the honey bee colony occurs at two levels – the individual bees and the colony of which they are a part. This section covers development, morphology, and behaviors of the three main bee types in a colony.

#### Building hive equipment

A hands-on demonstration of constructing the basic components of a bee hive.

### Cell-punch method for queen rearing

A perennial favorite at the Young Harris Institute – a how-to workshop on rearing queens without the tedious step of grafting delicate larvae.

#### Comparing effectiveness of different methods for controlling Varroa

Results of University of Sussex research on varroa control. What proportion of mites do different methods kill, and how effective is that not just in terms of proportion killed but in duration of control provided?

#### Discussing the certified exam

A chance to talk about the questions and answers on the certified written and practical exams.

#### Discussing the Journeyman exam

A chance to talk about the questions and answers on the Journeyman written and practical exams. Materials from the practical exam will be out for reexamination and discussion.

#### Effects of urban- and agro-ecosystems on bees

How the widely different habitats in the American landscape affect bee health.

#### Even healthy bees have to eat: Studying the honey bee food supply and how to improve it

Results of University of Sussex research on honey bee foraging, including determining which garden flowers are most attractive to flower-visiting insects and using dance decoding to determine what time of year is most challenging for obtaining food.



#### Getting started: The principles

The basic theory and knowledge behind acquiring and successfully establishing your first bee hive.

#### Getting started: The real thing

A live demonstration of the methods for getting started with real bees and hives.

#### The great Georgia pollinator census

On August 23rd and 24th, 2019, Georgians across the state will join together in a citizen science initiative documenting our pollinator populations. This class will discuss how the Great Georgia Pollinator Census will work, the goals of the project, and how you can become involved.

#### Honey bee nutrition

An overview of the age-related changes in honey bee nutrient demands and how this affects bee health.

#### Mead making

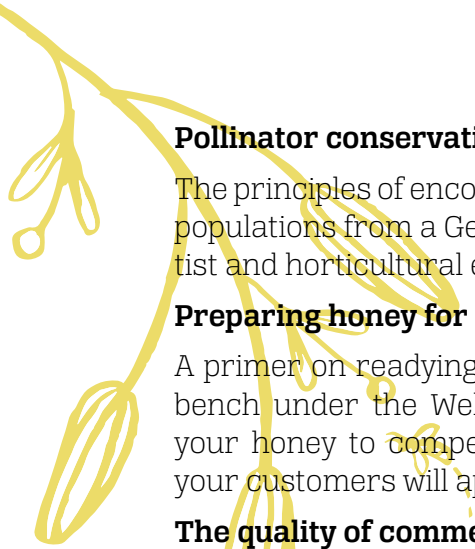
The basic tools and methods for making mead – honey wine.

#### Oxalic acid Varroa control

The UGA bee lab has been involved in national scale studies on the efficacy of oxalic acid formulations for Varroa mite control. Come hear the latest information on this important active ingredient.

#### Parasites and pathogens

A beginner's overview of the major honey bee parasites, diseases and methods for management.



### Pollinator conservation

The principles of encouraging natural pollinator populations from a Georgia conservation scientist and horticultural entomologist.

### Preparing honey for the show bench

A primer on readying your honey for the show bench under the Welsh standards. Subjecting your honey to competitive critique is fun, and your customers will appreciate the results!

### The quality of commercial queens

Diminished queen quality and longevity are major problems experienced by beekeepers, and this class will give the good news and the bad when it comes to the quality of queens we buy to put in our hives.

### Queen introduction

One of the most important beekeeping tasks is keeping colonies stocked with productive queens. This session will offer guidance on the art and science of replacing queens.

### Reusable beeswax wraps

Beeswax wraps are thin cotton fabric permeated with beeswax and resin. The wax makes it easy to mold over the top of a bowl, or to wrap up a sandwich or any other food. This class requires advance enrollment and an additional \$5 fee to cover costs of materials.

### Tips and tricks for easier beekeeping

Insider hints from a Georgia Master Beekeeper for simplifying beekeeping chores.

### Top 8 Best Practices in Modern Beekeeping

OK, you're not quite a beginner anymore, but you're not as confident as you'd like to be. This presentation by a Georgia Master Craftsman Beekeeper will cover details on nutrition, health management, and hive manipulations that can help push your operation to the next level.

### Trees to plant for bees

When it comes to perennial nectar sources, it's hard to beat trees. In this session you'll learn about the primary nectar-bearing trees of the Southeast and methods for encouraging their growth and health.

### Summer and fall management

A relatively slow time in beekeeping, yet important for laying the groundwork for successful overwintering.

### Viruses and the role of Varroa

The latest science underscores the importance of viruses as a leading cause of mite-associated bee health decline. Come hear the latest on this subject from a scientist working in the field.

### What's killing your bees?

Bees are facing many threats, but not all threats are equal. A talk designed to help you prioritize, look out for, and mitigate the greatest hazards to honey bees.

### Why we make nucs and how we do it with a double screen

A practical how-to session from a commercial beekeeper explaining his methods for starting a nucleus colony.

### Why what our bees are foraging on matters for disease

Research has shown that bees are capable of "self-medicating" – foraging for plant or fungal compounds that treat their own ailments. Conversely, scientists are discovering that certain forage plants, including blueberry, make bees more vulnerable to specific diseases. We dive into these new topics to see what we already know and what we might still have to learn.

### Winter and spring management

This is the time of the year to secure optimum colony strength and productivity. Come learn the priorities and pitfalls of this most busy of seasons.



## WEDNESDAY, MAY 22, 2019

WEDNESDAY'S EMPHASIS is on lectures and exams for Journeyman, Master, Master Craftsmen, and Welsh Honey Judge Candidates. Certified practical exams are offered by appointment Wednesday, all day Thursday, and morning only on Friday.

	JOURNEYMAN SCHEDULE Maxwell 116	MASTER SCHEDULE 117 Maxwell	WELSH HONEY JUDGE TRAINING Rollins level 2	
8:00-9:30	<i>Parasites and toxicology</i> Berry	<i>General review time</i> Delaplane	Levels I and II, English 8:00-10:15	
9:30-10:15	<i>General review time</i> Delaplane	<i>Toxicology</i> Dix		
10:15-10:30	<b>BREAK</b>			
10:30-11:15	<i>General review time</i> Delaplane	<i>Pollination biology and human economics</i> Arnold	Levels I and II, English 10:30-12:00	
11:15-12:00	<i>General review time</i> Delaplane	<i>Non-Apis bees and their conservation</i> Griffin		
12:00	<b>LUNCH</b>			
1:00-4:00	<b>JOURNEYMAN PRACTICAL EXAMINATIONS**</b> Maxwell 109 Dix, Hester, Garrison	<b>MASTER AND MASTER CRAFTSMAN AUDITS</b> 1:00-5:00 Maxwell 116, Arnold, Delaplane	<b>CERTIFIED PRACTICAL EXAMS*</b> available by appointment 1:00-5:00 Maxwell 113, 114 staff	<b>WELSH HONEY JUDGE TRAINING</b> 1:00-5:00 Rollins level 2 Levels I and II English
4:00-5:00	<b>JOURNEYMAN AND MASTER WRITTEN EXAMINATIONS</b> Maxwell 117, Garrison			

\* Schedule your exam time at online registration. Certified candidates must sit for two exams: a practical and written. The written exam is Friday 1:20.

\*\*Note: Journeyman practical exam answers will be discussed in Maxwell 109 on Friday at 1:20.





# THURSDAY, MAY 23, 2019

**Certified candidates** please note that while Thursday's lectures are open to everybody, candidates for the Certified written exam should pay special attention to classes highlighted in blue.

Certified candidates must sit for two exams: a practical and written. The practical exam has two components – indoor and outdoor. The written exam is Friday at 1:20. Schedule your practical exam time at the registration desk.

**Certified practical exams** are offered by appointment Thursday during class sessions from 9:10-12:20, from 1:20-4:30, and Friday morning. *Please sign up for a time slot when you check in.*

**Welsh Honey Judge training levels II and III** Sessions are held in the Rollins building on level 2. The morning session is from 9:10 to 12:20. After a break for lunch, the afternoon session is from 1:20 to 4:30.

7:00 - 5:30	<b>Registration</b> open in <b>Rollins lobby</b>
8:00- 8:10	<b>Welcome</b> and opening details, <b>Rollins Suber</b> • Delaplane
8:10- 9:00	<b>Plenary lecture:</b> <i>The amazing honey bee</i> , <b>Rollins Suber</b> • Ratnieks
9:10- 10:00	<i>Effects of urban and agro- ecosystems on bees</i> , <b>Rollins Suber</b> • Tarpy <i>Parasites and pathogens</i> , <b>Rollins Hatcher</b> • Wilson <i>Getting started: the principles</i> , <b>Maxwell 106</b> • Chaisson <i>Winter and spring management</i> , <b>behind Maxwell</b> • Mealer <i>Queen introduction</i> , <b>Maxwell 107</b> • Montgomery <i>Beelining: theory and practice</i> , <b>Maxwell 116</b> • Long
10:00- 10:30	Break
10:30- 11:20	<i>The great Georgia pollinator census</i> , <b>Rollins Suber</b> • Griffin <i>Parasites and pathogens</i> , <b>Rollins Hatcher</b> • Berry <i>Getting started: the principles</i> , <b>Maxwell 106</b> , Dix <i>Winter and spring management</i> , <b>behind Maxwell</b> • Funderburg <i>Queen introduction</i> , <b>Maxwell 107</b> • Montgomery <i>Beelining: theory and practice</i> , <b>Maxwell 116</b> • Long
11:30- 12:20	<i>Effects of urban and agro- ecosystems on bees</i> • <b>Rollins Suber</b> , Tarpy <i>Parasites and pathogens</i> , <b>Rollins Hatcher</b> • Wilson <i>Getting started: the principles</i> , <b>Maxwell 106</b> • Chaisson <i>Winter and spring management</i> , <b>behind Maxwell</b> • Mealer <i>13 big mistakes beekeepers make</i> , <b>Maxwell 107</b> • Fielder <i>Honey bee nutrition</i> , <b>Maxwell 117</b> • Cahill- Roberts

12:20- 1:20	<b>Lunch for general registrants</b> , Rollins cafeteria Advance ticket sales will be available in the Rollins lobby. <b>Invitational Master luncheon</b> , Rollins 3d floor student loft, open to sitting Master and Master Craftsman beekeepers only. Preregistration required. Open Q&A time with guest speakers. Master Beekeepers are encouraged to wear their name badges.
1:20- 2:10	<i>The great Georgia pollinator census</i> , <b>Rollins Suber</b> • Griffin <i>Biology of individuals</i> , <b>Rollins Hatcher</b> • Hagan <i>Biology of the colony</i> , <b>Maxwell 116</b> • Arnold <i>Getting started: the real thing</i> , <b>behind Maxwell</b> • Garrison <i>13 big mistakes beekeepers make</i> , <b>Maxwell 107</b> • Fielder <i>How mites and neonics affect food glands and why it matters</i> , <b>Maxwell 106</b> • Bruckner <i>Honey bee nutrition</i> , <b>Maxwell 117</b> • Cahill- Roberts
2:20-3:10	<i>Oxalic acid Varroa control</i> , <b>Rollins Suber</b> • Berry <i>Biology of individuals</i> , <b>Rollins Hatcher</b> • Hagan <i>Biology of the colony</i> , <b>Maxwell 116</b> • Delaplane <i>Getting started: the real thing</i> , <b>behind Maxwell</b> • Dix <i>Cell-punch method of queen rearing</i> , <b>Maxwell 107</b> • Montgomery <i>Making reusable beeswax wraps</i> , ** <b>Maxwell 117</b> • Mahood <i>Beelining: make-your- own bee- lining box</i> , * <b>Maxwell 108</b> • Long
3:10- 3:40	Break
3:40-4:30	<i>Oxalic acid Varroa control</i> , <b>Rollins Suber</b> • Berry <i>Biology of individuals</i> , <b>Rollins Hatcher</b> • Hagan <i>Biology of the colony</i> , <b>Maxwell 116</b> • Arnold <i>Getting started: the real thing</i> , <b>behind Maxwell</b> • Garrison <i>Cell-punch method for queen rearing</i> , <b>Maxwell 107</b> • Montgomery <i>Making reusable beeswax wraps</i> , ** <b>Maxwell 117</b> • Mahood <i>Beelining: make-your- own bee- lining box</i> , * <b>Maxwell 108</b> • Long
4:40- 5:30	<b>Plenary lecture:</b> Thermal insights into the colony, Rollins Suber • Mangum

\*Students will build and take home a bee lining box (see photo in course description). Limited to the first 40 applicants  
 Note: registrants must sign up for a class time to ensure attendance is equitably spread. Check your intention to attend this workshop on the registration form. An additional course fee of \$25 per participant will be collected at registration to cover costs for materials.

\*\*Check your intention to attend this workshop on the registration form. An additional course fee of \$5 per participant will be collected at registration to cover costs for materials.





## FRIDAY, MAY 24, 2019

**Certified candidates** please note that while Friday's lectures are open to everybody, candidates for the Certified written exam should pay special attention to classes highlighted in blue.

Certified candidates must sit for two exams: a practical and written. The practical exam has two components – indoor and outdoor. The written exam is Friday at 1:20. Schedule your practical exam time at the registration desk.

**Certified practical exams** are offered by appointment this morning during class sessions from 9:10-12:20. Please sign up for a time slot when you check in. **The Certified written exam** will be administered at 1:20 in the Rollins level 3 loft.

7:00-10:30	<b>Honey show entries received</b> , Rollins second floor.
7:00 - 5:30	<b>Registration</b> open in <b>Rollins lobby</b>
8:00- 8:10	<b>Welcome</b> and opening details, <b>Rollins Suber</b> • Delaplane
8:10- 9:00	<b>Plenary lecture:</b> <i>Benefits of genetic diversity in your hives</i> , <b>Rollins Suber</b> • Tarpy
9:10- 10:00	<i>Comparing effectiveness of different methods for controlling varroa</i> , <b>Rollins Suber</b> • Ratnieks <i>Tips and tricks for making beekeeping easier</i> , <b>Rollins Hatcher</b> • Mahood <i>Building hive equipment</i> , <b>Maxwell 108</b> • Funderburg <i>Summer and fall management</i> , <b>behind Maxwell</b> • Chaisson <i>Basic honey processing</i> , <b>Maxwell 117</b> • Dix <i>Preparing honey for the show bench</i> , <b>Rollins level 2</b> • English <i>Why we make nucs and how we do it with a double screen</i> , <b>Maxwell 106</b> • Binnie
10:00- 10:30	Break
10:30- 11:20	<i>Beekeeping with top-bar hives</i> , <b>Rollins Suber</b> • Mangum <i>Tips and tricks for making beekeeping easier</i> , <b>Rollins Hatcher</b> • Mahood <i>Building hive equipment</i> , <b>Maxwell 108</b> • Funderburg <i>Summer and fall management</i> , <b>behind Maxwell</b> • Mealer <i>Basic honey processing</i> , <b>Maxwell 117</b> • Dix <i>What's killing your bees?</i> , <b>Maxwell 107</b> • Fielder <i>Why we make nucs and how we do it with a double screen</i> , <b>Maxwell 106</b> • Binnie
11:30- 12:20	<i>Comparing effectiveness of different methods for controlling varroa</i> , <b>Rollins Suber</b> • Ratnieks <i>Pollinator conservation</i> , <b>Rollins Hatcher</b> • Braman <i>Building hive equipment</i> , <b>Maxwell 108</b> • Funderburg <i>Summer and fall management</i> , <b>behind Maxwell</b> • Chaisson <i>Basic honey processing</i> , <b>Maxwell 117</b> • Dix <i>What's killing your bees?</i> , <b>Maxwell 107</b> • Fielder <i>Mead making</i> , <b>Maxwell 116</b> • Brewer
12:20- 1:20	<b>Lunch</b> Rollins cafeteria Advance ticket sales will be available in the Rollins lobby.

1:20- 2:10	<i>Beekeeping with top-bar hives</i> , <b>Rollins Suber</b> • Mangum <i>Trees to plant for bees</i> , <b>Rollins Hatcher</b> • Gatt <i>Apitherapy</i> , <b>Maxwell 107</b> • Cahill- Roberts <i>Viruses and the role of Varroa - A Refresher and Updates</i> , <b>Maxwell 117</b> • Bartlett <i>Discussing the Journeyman exam</i> , <b>Maxwell 109</b> • Dix, Garrison, Hester <i>Top 8 Best Practices in Modern Beekeeping</i> , <b>Maxwell 106</b> • Wilson <i>Mead making</i> , <b>Maxwell 116</b> • Brewer <b>Certified written exam*</b> , <b>Rollins level 3 loft</b> • Garrison
2:20- 3:10	<i>Trees to plant for bees</i> , <b>Rollins Hatcher</b> • Gatt <i>Apitherapy</i> , <b>Maxwell 107</b> • Cahill- Roberts <i>Viruses and the role of Varroa - A Refresher and Updates</i> , <b>Maxwell 117</b> • Bartlett <i>Beelining: Live demonstration</i> , <b>behind Maxwell</b> • Long <i>Top 8 Best Practices in Modern Beekeeping</i> , <b>Maxwell 106</b> • Wilson <i>Mead making</i> , <b>Maxwell 116</b> • Brewer <i>Basics of queen rearing</i> , <b>Maxwell 108</b> • Mealer
3:10- 3:40	Break
3:40- 4:30	<i>Trees to plant for bees</i> , <b>Rollins Hatcher</b> • Gatt <i>Apitherapy</i> , <b>Maxwell 107</b> • Cahill- Roberts <b>Discussing the Certified exam</b> , <b>Maxwell 117</b> • Berry <i>Beelining: Live demonstration</i> , <b>behind Maxwell</b> • Long <i>Top 8 Best Practices in Modern Beekeeping</i> , <b>Maxwell 106</b> • Wilson <i>Basics of queen rearing</i> , <b>Maxwell 108</b> • Mealer
4:40- 5:30	<b>Plenary lecture:</b> <i>Plant sciences and pollinators: what future might horticulture hold for our bees?</i> <b>Rollins Suber</b> • Bartlett
5:30	<b>Awards and presentations</b> Rollins Suber: Honey show, Master beekeeper program levels, Welsh honey judges

## SATURDAY, MAY 25, 2019

Today's plenary lectures are all in Rollins Suber and open to everybody.

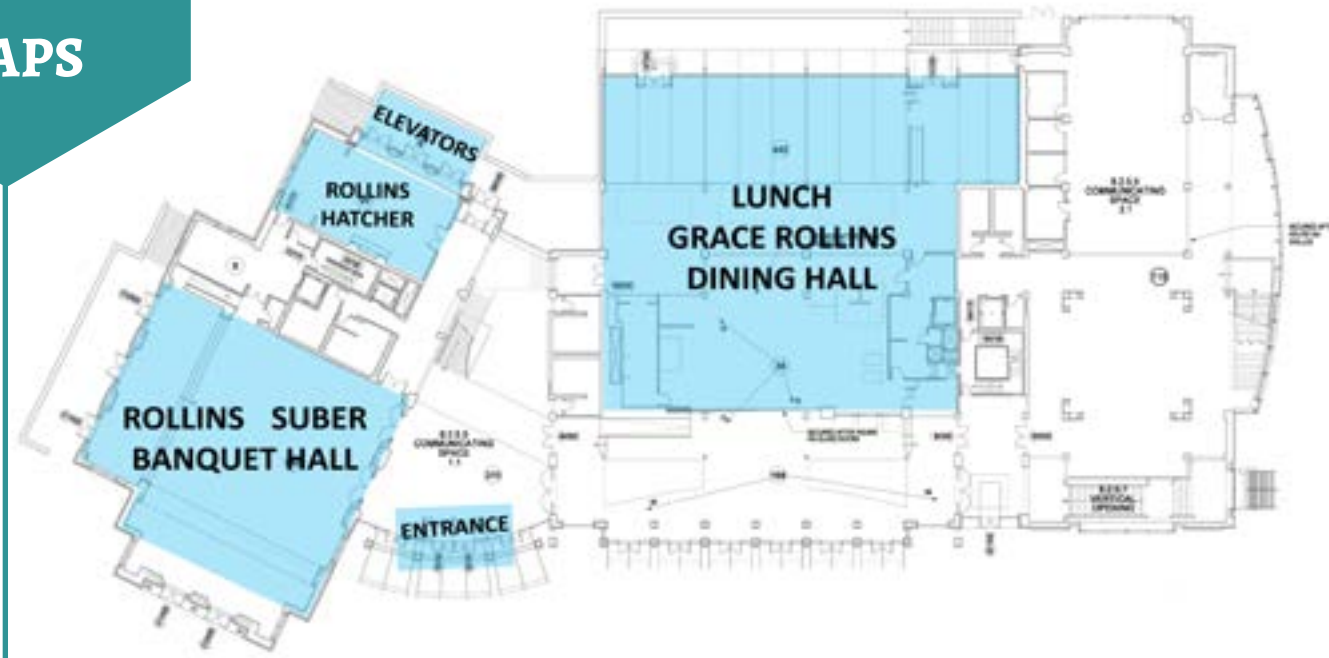
7:00 – 10:30	<b>Registration</b> open in <b>Rollins lobby</b>
8:00-8:10	<b>Welcome</b> and opening details • Delaplane
8:10-9:00	<i>Even healthy bees have to eat: Studying the honey bee food supply and how to improve it</i> • Ratnieks
9:10-10:00	<i>The quality of commercial queens</i> • Tarpy
10:00-10:30	Break
10:30-11:20	<i>Why what our bees are foraging on matters for disease</i> • Bartlett
11:30-12:20	<i>History of beekeeping</i> • Mangum

Honey show entries ready for pick-up. Adjourn, safe journeys, and see you next year!

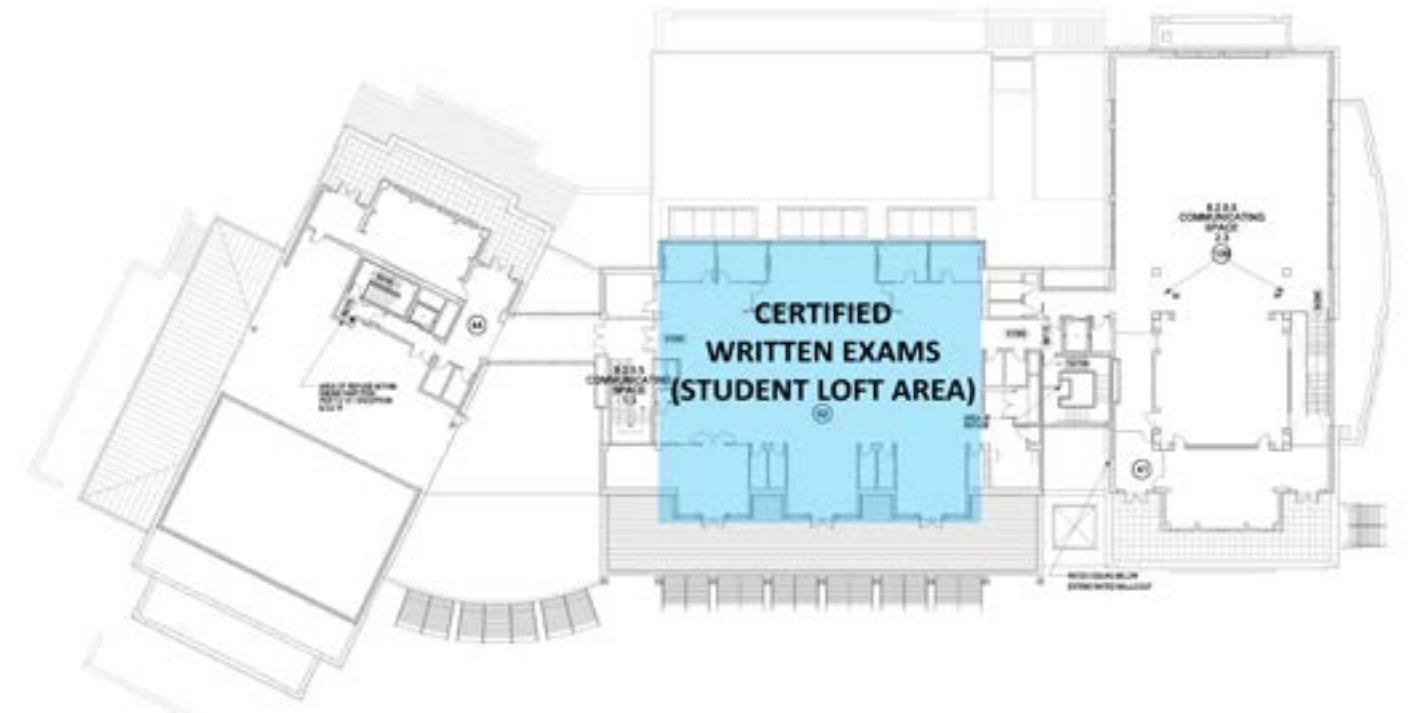




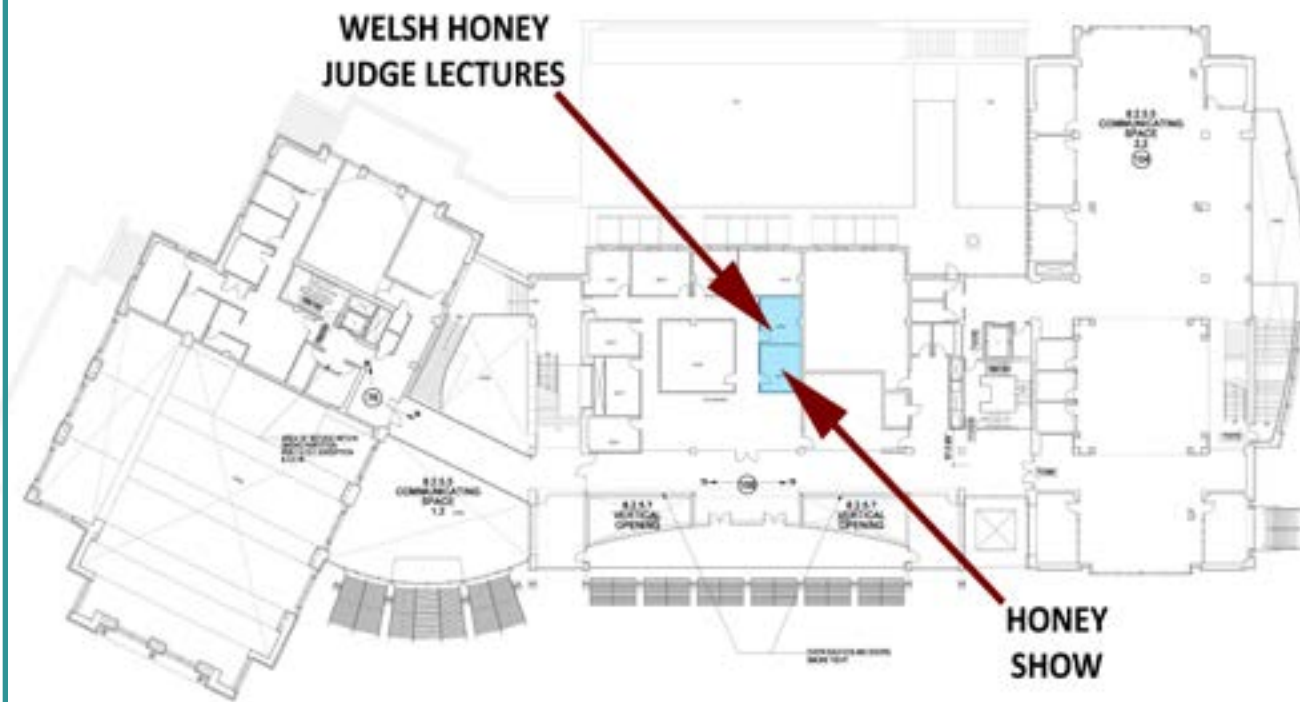
Rollins First Floor



Rollins Third Floor



Rollins Second Floor



Maxwell First Floor

