



Young Harris College / University of Georgia

# Beekeeping Institute

2020



May 13-16, 2020 • Young Harris, Georgia



*Beekeeping  
Institute*

*Since 1991*

**This marks the 29th year of the Young Harris College / University of Georgia Beekeeping Institute.** Every year, it's our goal to bring beekeepers together with the best bee scientists and educators in the English-speaking world. Surrounded by the beauty of the north Georgia mountains, the Institute is quite simply one of the best beekeeping educational events 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 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 on page six.

The Institute proper, which takes place Thursday through Saturday, consists of lectures and workshops covering a vast range of beekeeping topics. Wednesday, May 13 is dedicated to training and examinations 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 (entry) 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. We welcome participants of all ages, but minors under the age of 18 must be accompanied by a parent or legal guardian.

One of the most rewarding opportunities at the Institute is the annual Honey Show. The Honey Show accepts entries in photography, art, candles, mead, beekeeping gadgets, and of course honey and beeswax. 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 products compare to others'. You can find the Honey Show rules [on our website](#).



2020  
Beekeeping Institute

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### Professor Robin Crewe

For a period of ten years, (1986-1996) while Director of the Communication Biology Research Group of the University of Witwatersrand, Johannesburg, South Africa, Robin's work was focused on the study of honey bee chemical communication systems. He established the Social Insects Research Group at the University of Pretoria which continues with studies of social insects under the direction of Professor Christian Pirk. Professor Crewe has worked with honey bee research groups in France and Germany and has had a longstanding collaboration with Professor Robin Moritz of the University of Halle-Wittenberg in Germany.

Robin has published more than 140 articles in refereed journals, 15 articles in journals for beekeepers, 3 book chapters, and one book. He has made numerous contributions at scientific conferences. His current research is focused on chemical communication and social organization in honeybees and ants, particularly with respect to worker reproductive regulation.

Robin is a Fellow of the Royal Entomological Society of London, a Fellow of the Royal Society of South Africa, a Fellow of the World Academy of Sciences, a founding member of the Academy of Science of South Africa (ASSAf), a fellow of the African Academy of Science, and a Foreign Associate of Hassan II Academy of Science and Technology in Morocco. Professor Crewe was awarded the Gold Medal of the Zoological Society of South Africa and is an honorary life member of the Entomological Society of Southern Africa. The French Government granted him the Ordre National du Mérite with the rank of Chevalier in 2006. He was awarded the prestigious Harry Oppenheimer Fellowship for 2012 and the ASSAf Gold Medal for meritorious service in 2013. He is currently a Senior Research Fellow in the Centre for the Advancement of Scholarship at the University of Pretoria.

### Dr. Kirsten Traynor

Kirsten's interest in bees came quite by accident when a local beekeeper put colonies on her property. She loved the flavor of fresh honey but even more she enjoyed having the bees nearby. Then one night, the beekeeper quietly and without notice, removed the colonies and hence no more bees. But, but, but, this couldn't happen because she was hooked. Kirsten decided to take matters in to her own hands this time and attended a beekeeping short course. While there, she won the raffle prize, a hive body. This was only the beginning, next she ordered bees and as with most beekeepers, one hive becomes two, two becomes four, four becomes 40 and your life is completely immersed in the world of honey bees.

Kirsten wanted to combine her love of travel and her fascination with bees, so she decided to apply for a fellowship. She received the prestigious German Chancellor Scholarship from the Humboldt Foundation in 2006-2007, annually awarded to ten American leaders in their field. She drove over 50,000 miles throughout Western Europe to study the differences between European and American beekeeping, reporting her findings through 50+ published articles in national and international magazines. At the same time, she inter-



viewed scientists and medical doctors, gathering information for her book: *Two Million Blossoms: Discovering the Medicinal Benefits of Honey*.

Fascinated with the social complexity of a honey bee colony, Kirsten earned her PhD in biology from Arizona State University. While a grad student, she spent almost a year in Avignon, France in the lab of Dr. Yves Le Conte as a Fulbright Fellow. She investigated how pesticides impact honey bee health as a post doc at the University of Maryland in the lab of Dr. vanEngelsdorp. From 2015-2017 she edited *Bee World*, published by the International Bee Research Association. Next, she edited *American Bee Journal*, Dadant's monthly magazine that has been published since 1861. In 2018 -2019 she took on a fellowship at the Wissenschaftskolleg, in Berlin, Germany.

Today Kirsten is a research associate at Arizona State University in the Global Biosocial Complexity Initiative. She studies honey bee communication, health and nutrition. Just recently she launched a new quarterly magazine *2 Million Blossoms*, a magazine about protecting our pollinators.



### Jerry Hayes

Since the beginning of time, or thereabouts, Jerry has immersed himself in the world of bees. Once he heard about this cool hobby called "beekeeping" he couldn't get enough. So much so, he decided to leave his job, take his wife and young child, and make the logical decision to go back to school. He received his MS degree under the direction of Dr. Jim Tew and hasn't looked back. He worked for a while for USDA identifying Africanized honey bees, but made his career move into the bee world when he took a job as a branch manager for Dadant. His job eventually morphed into more product development and testing which he enjoyed. While at Dadant he started the Q&A column in *American Bee Journal* called "The Classroom." Jerry answered beekeeper's questions for 35 years, just retiring from the assignment in 2019.

Missing the South, he shifted careers and became Chief Apiary Inspector for the Florida Department of Agriculture and Consumer Services. During those years, he was introduced to RNAi which was an emerging new technology offering hope for controlling varroa. After nine years with the Florida Department of Ag, Monsanto came a calling and offered Jerry a position which he accepted. He took the job because he truly believed he could not only tear down barriers between the beekeeping industry and Monsanto but also help the bees. With the weight of Monsanto backing RNAi, there was a chance it could become reality. Unfortunately, delivering RNAi proved intractably difficult, and the project was abandoned. That's when he decided to move on and went to work for Vita Bee Health until a completely different offer came his way.

Kim Flottum, previous editor of *Bee Culture* magazine, had approached Jerry a few years ago about taking over as editor. He considered the position but figured there were way too many folks more qualified that would want the job. But when it came down to it, he was the one most qualified. Jerry has been at the helm as editor for only a few months now, and so far, is loving his job.



# STAFF & INSTRUCTORS



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



Dr. Lewis Bartlett is an infectious disease biologist, entomologist, and evolutionary ecologist at UGA's Center for the Ecology of Infectious Diseases.



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



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



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



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



Bobby Chaisson has kept bees for over eleven years and now works as a fulltime 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 Welsh Honey Judge for Georgia and Alabama, and honey show chairman for the GBA 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 has taught the Building Hive Equipment at the institute since 2011.



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



Jimmy Gatt is a Journeyman 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 and 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 annual 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.



Cindy Hodges is a Georgia Master Craftsman Beekeeper and has been active in the beekeeping community for over 15 years. She was awarded Georgia Beekeeper of the year in 2012.



Dan Long is a Georgia Master Beekeeper and owner/operator of Brushwood Nurseries and Tallassee Highlands Apiary.



Julia Mahood is a Georgia Master Beekeeper, past president of MABA, and the Georgia Beekeepers Association's 2018 Beekeeper of the Year.



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



Amy Weeks is a queen breeder and producer from Louisiana and a Georgia Master Craftsman Beekeeper.



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 2020, the Georgia Master Beekeeper Program 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 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 has since expanded into a sister program in Alabama. Welsh judges are now serving at honey shows across the Southeast and at the Eastern Apicultural Society. 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](#)



# WELSH HONEY JUDGE PROGRAM

### 2020 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 15, 2020

Entries received 7:00-10:30 am

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

**JUDGING:** Friday, May 15, 2020, 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 16th, after which exhibitors may pick up their entries.



**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.

**Beekeeping 201: Parts 1 and 2** A two-part class for beekeepers who have mastered the basics and are ready to challenge themselves with new skills.

**Best of "The Classroom"** After 35 years answering beekeepers' questions every month in *American Bee Journal*, if there's anyone who's "heard it all," it's Jerry Hayes. Come hear his insights gleaned from this extraordinary experience.

**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.

**Confirmation Bias: The beekeeper's echo chamber** It's a proven fact: we all prefer news sources that confirm our pre-existing opinions. Drawing from his decades of experience, Jerry Hayes talks about the pitfalls of this bias for beekeepers and bees.

**Creating an industry, the Guyana way** Georgia Master Craftsman Amy Weeks has been a force in the development of Guyana's nascent beekeeping industry. Come hear how to start an industry minus the resources western beekeepers take for granted.

**Crowding and caravans: Is industrial beekeeping bad for bees?** Trucking bees thousands of miles and clumping them into holding yards of tens of thousands of hives can't be good for bee health, right? Come hear an evidence-based analysis of this common practice.

**Darkside of the Feminine Monarchie: Individual behavior in honey bees** In his classic 1609 text, *The Feminine Monarchie, or The Historie of Bees*, Charles Butler perpetuated the idea that the bee colony is an ideal model of hierarchical organization with the queen at the top dictating the labors of her workers below. This lecture will update Butler's interpretation with a distinctly 21st century understanding of colony organization.

**Different races of honey bees** The western honey bee *Apis mellifera* is divided into over 20 identifiable races, but American beekeepers are typically familiar with only a few. This overview will give students a taste of the amazing diversity of honey bees used by beekeepers in other parts of the world.

**Different species of Apis** The western honey bee is just one of up to 13 different species lumped into the genus *Apis*. This famous genus is considered the "true" honey bees and includes members who live in cavities or in the open, on one comb or many. This lecture will showcase what's similar and what's different about "our" honey bee's nearest cousins.

**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.

**Fossils, honey bee biodiversity and sustainable food production** From the Dark Continent, ancestral home of *Apis mellifera*, Professor Crewe will enlighten us on the ancient history of honey bees and what that history teaches us about sustainable life on this planet in the 21st century.

**Four seasons forage with forbs and exotics** A tenet of bee conservation is installing plants that bloom year-round. This workshop will guide students in choosing plant assemblies that provide optimum nutrition for pollinators at all stages of their life cycle.

**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.

**Honey: from ancient civilizations to modern delicacy** Honey is one of the most celebrated products of agriculture and an ingredient of myth, folklore, medicine, and ritual down the ages. This presentation gives us an overview of its rich history.

**How to find DCAs using a mechanical drone** Using drones to find drones? Yes, the pun is unavoidable – but come learn how remotely controlled aircraft can be used to shed light on the mysterious mating behavior of honey bees.

**Making mead** A demonstration of the basic tools and methods for making mead – honey wine.

**Making your own swarm trap** Students will build and take home a swarm trap. Enrollment is limited to the first 20 applicants. Registrants must sign up for a class time to ensure attendance is equitably spread, 10 per class. Check your intention to attend this workshop on the registration form. An additional course fee of \$30 per participant will be collected at registration to cover costs for materials. See accompanying class Principles of swarm trapping.

**Oxalic acid update** 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 and study results.

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

**Pesticides and Pollinators** Pesticides have been a consistent focus of the latest research on honey bee health. This lecture will bring students the latest state of science on the synthetic toxins honey bees routinely encounter in their environment.

**Principles of swarm trapping** From the first time humans began practicing bee "keeping" – instead of bee predation – catching swarms has been the easiest and cheapest way to increase hive numbers. This class will present the biology behind swarm trapping and how beekeepers can apply it to their own practice.

**Problems and promises of Darwinian beekeeping** Alongside "natural" beekeeping, "let-alone" beekeeping, and "survivor" beekeeping, "Darwinian" beekeeping holds out the allure of a more biologically based approach to bee health management. This lecture critically examines the biology behind this movement and points out its strengths and pitfalls.

**Queen rearing** A Georgia Master Craftsman and commercial queen producer will teach the fundamentals of rearing queens.

**Summer and fall management** This is a relatively slow time in beekeeping, yet good summer and fall management lays the groundwork for successful overwintering and strong growth in spring.



**The capensis calamity: The implications for apiculture** The honey bee race *Apis mellifera capensis* has emerged as a social parasite of commercial honey bees and a serious pest of beekeeping in South Africa. Professor Crewe will describe this potential threat to North American beekeeping and offer advice for preventing its importation.

**The chemistry behind feeding bees:** There is much discussion about feeding bees, whether good or bad. A veteran beekeeper (40+ years) will discuss why feeding bees cane sugar may not be harmful but actually beneficial due to its chemistry.

**The insect apocalypse** Remember clouds of summertime insects that would clog your car's radiator? Halos of flying insects around streetlights? Choirs of crickets and galaxies of lightning bugs? This lecture will discuss the growing evidence for a general worldwide decline in insects.

**The secret life of drones** Maligned as shiftless gadabouts, these guys actually have a well-hidden repertoire of interesting behaviors. You won't feel the same about drones after you take this class.

**Tips for preparing show quality beeswax** Few agricultural products can rival honey and beeswax for their beauty and aesthetically pleasing properties. This workshop will show you how to prepare prize-winning beeswax for show or sale.

**Two million blossoms: Honey for your health** Kirsten Traynor will unfold the quiet miracle behind every teaspoon of honey and discuss the healthful properties of this most sublime product of the bee hive.

**Viruses, varroa and virulence: What makes bee parasites deadly** Science has made it clear that the Varroa problem is a synergistic property of mites and the viruses they vector. Why is this combination so deadly? What can beekeepers do about it?

**Want to keep your bees alive? Then do something!** Among the major causes of honey bee decline, many of them are directly within a bee-

keeper's control. This workshop will showcase these "easily preventable" colony deaths and help you improve your colony's health and productivity.

**Why beekeepers need licentious queens** Queens that mate with many males will have colonies that are generally stronger and healthier. This lecture showcases research at UGA that delves deeply into the question why genetic variation improves colony performance.

**Why is Nosema no longer Nosema?** If it's true that science never stands still, the same holds true for scientific names. This class will bring students up to date on a new name for an old pest and what it means for honey bee health.

**Why you want to rotate old comb** Research has shown that colonies housed on old comb perform more poorly than colonies on new comb. This commercial beekeeper will explain how he applies this scientific principle to his multi-thousand colony operation.

**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.

**Your Pollinator Garden** The results of the 2019 Georgia Pollinator Census, which documented our pollinator populations, will be discussed. Other topics covered will be Pollinator Plants of the Year, building a pollinator garden and the insects that are found there.



## WEDNESDAY, MAY 13, 2020

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	<i>Levels I and II, English</i> 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	<i>Levels I and II, English</i> 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, Hodges, Garrison	<b>MASTER AND MASTER CRAFTSMAN AUDITS</b> 1:00-4:00 Maxwell 116, Arnold, Delaplane	<b>CERTIFIED PRACTICAL EXAMS*</b> available by appointment 1:00-5:00 Maxwell 113, 114 staff
4:00-5:00	<b>JOURNEYMAN AND MASTER WRITTEN EXAMINATIONS</b> Maxwell 117, Garrison		<b>WELSH HONEY JUDGE TRAINING</b> 1:00-5:00 Rollins level 2 <i>Levels I and II</i> English

\*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 two part practical exam time at the registration desk.

\*\*Note: Journeyman practical exam answers will be discussed in Maxwell 109 on Friday at 3:40.



# THURSDAY, MAY 14, 2020

**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 • Delaplane</b>
8:10- 9:00	<b>Plenary lecture:</b> <i>The capensis calamity: The implications for apiculture</i> , <b>Rollins Suber • Crewe</b>
9:10- 10:00	<i>Two million blossoms: Honey for your health</i> , <b>Rollins Suber • Traynor</b>
	<i>Parasites and pathogens</i> , <b>Rollins Hatcher • Bartlett</b>
	<i>Getting started: the principles</i> , <b>Maxwell 106 • Delaplane</b>
	<i>Winter and spring management</i> , <b>behind Maxwell • Chaisson</b>
	<i>Four seasons forage with forbs and exotics</i> , <b>Maxwell 107 • Gatt</b>
10:00- 10:30	Break
	<i>The best of "The Classroom:" 30 years answering beekeepers' questions</i> , <b>Rollins Suber • Hayes</b>
10:30- 11:20	<i>Parasites and pathogens</i> , <b>Rollins Hatcher • Bartlett</b>
	<i>Getting started: the principles</i> , <b>Maxwell 106, Arnold</b>
	<i>Winter and spring management</i> , <b>behind Maxwell • Fielder</b>
	<i>Four seasons forage with forbs and exotics</i> , <b>Maxwell 107 • Gatt</b>
	<i>Principles of swarm trapping</i> , <b>Maxwell 116 • Long</b>
11:30- 12:20	<i>Two million blossoms: Honey for your health</i> , <b>Rollins Suber • Traynor</b>
	<i>Parasites and pathogens</i> , <b>Rollins Hatcher • Bartlett</b>
	<i>Getting started: the principles</i> , <b>Maxwell 106 • Delaplane</b>
	<i>Winter and spring management</i> , <b>behind Maxwell • Chaisson</b>
	<i>The secret life of drones</i> , <b>Maxwell 107 • Mahood</b>
	<i>Making mead</i> , <b>Maxwell 116 • Brewer</b>

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 – Bartlett, Berry, Crewe, Delaplane, Hayes, Traynor. Master Beekeepers are encouraged to wear their name badges.
1:20- 2:10	<i>The best of "The Classroom:" 30 years answering beekeepers' questions</i> , <b>Rollins Suber • Hayes</b>
	<i>Biology of individuals</i> , <b>Rollins Hatcher • Hodges</b>
	<i>Biology of the colony</i> , <b>Maxwell 117 • Arnold</b>
	<i>Getting started: the real thing</i> , <b>behind Maxwell • Garrison</b>
2:20-3:10	<i>The secret life of drones</i> , <b>Maxwell 107 • Mahood</b>
	<i>Making mead</i> , <b>Maxwell 116 • Brewer</b>
2:20-3:10	<i>Oxalic acid update</i> , <b>Rollins Suber • Berry</b>
	<i>Biology of individuals</i> , <b>Rollins Hatcher • Hagan</b>
	<i>Biology of the colony</i> , <b>Maxwell 117 • Delaplane</b>
	<i>Getting started: the real thing</i> , <b>behind Maxwell • Dix</b>
	<i>Cell-punch method for queen rearing</i> , <b>Maxwell 109 • Montgomery</b>
3:10- 3:40	<i>Tips for preparing show quality beeswax</i> , <b>Maxwell 116 • Fielder</b>
	Break
3:40-4:30	<i>Oxalic acid update</i> , <b>Rollins Suber • Berry</b>
	<i>Biology of individuals</i> , <b>Rollins Hatcher • Hodges</b>
	<i>Biology of the colony</i> , <b>Maxwell 117 • Arnold</b>
3:40-4:30	<i>Getting started: the real thing</i> , <b>behind Maxwell • Garrison</b>
	<i>Cell-punch method for queen rearing</i> , <b>Maxwell 109 • Montgomery</b>
	<i>Tips for preparing show quality beeswax</i> , <b>Maxwell 116 • Fielder</b>
4:40- 5:30	<b>Plenary lecture:</b> <i>Why beekeepers need licentious queens</i> , <b>Rollins Suber • Hagan</b>





## FRIDAY, MAY 15, 2020

**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.

**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: Confirmation bias: The beekeeper's echo chamber</b> , <b>Rollins Suber</b> • Hayes
9:10- 10:00	<i>Crowding and caravans: Is industrial beekeeping bad for bees?</i> <b>Rollins Suber</b> • Bartlett <i>Different races of honey bees</i> , <b>Rollins Hatcher</b> • Hodges <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>Want to keep your bees alive? Then do something!</i> <b>Maxwell 107</b> • Fielder <i>Creating an industry, the Guyana way</i> , <b>Maxwell 106</b> • Weeks
10:00- 10:30	Break
10:30- 11:20	<i>The dark side of the Feminine Monarchie: Individual behavior in honey bees</i> , <b>Rollins Suber</b> • Crewe <i>Beekeeping 201: Part 1</i> , <b>Rollins Hatcher</b> • Wilson <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>Want to keep your bees alive? Then do something!</i> <b>Maxwell 107</b> • Fielder <i>Creating an industry, the Guyana way</i> , <b>Maxwell 106</b> • Weeks
11:30- 12:20	<i>Crowding and caravans: Is industrial beekeeping bad for bees?</i> <b>Rollins Suber</b> • Bartlett <i>Beekeeping 201: Part 2</i> , <b>Rollins Hatcher</b> • Wilson <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>Apitherapy</i> , <b>Maxwell 107</b> • Cahill-Roberts <i>Your Pollinator Garden</i> , <b>Maxwell 106</b> • Griffin
12:20- 1:20	<b>Lunch</b> Rollins cafeteria Advance ticket sales will be available in the Rollins lobby.

1:20- 2:10	<i>The dark side of the Feminine Monarchie: Individual behavior in honey bees</i> , <b>Rollins Suber</b> • Crewe <i>Beekeeping 201: Part 1</i> , <b>Rollins Hatcher</b> • Wilson <i>Queen rearing</i> , <b>Maxwell 116</b> • Weeks <i>How to find DCAs using a mechanical drone</i> , <b>behind Maxwell</b> • Mahood <i>Making your own swarm trap**</i> , <b>Maxwell 117</b> • Long <i>Why you want to rotate old comb</i> , <b>Maxwell 107</b> • Binnie <i>Viruses, varroa, and virulence: What makes bee parasites deadly</i> , <b>Maxwell 106</b> • Bartlett <b>Certified written exam</b> , <b>Rollins level 3 loft</b> • Garrison
2:20- 3:10	<i>Insect apocalypse</i> , <b>Rollins Suber</b> • Berry <i>Beekeeping 201: Part 2</i> , <b>Rollins Hatcher</b> • Wilson <i>Queen rearing</i> , <b>Maxwell 116</b> • Weeks <i>How to find DCAs using a mechanical drone</i> , <b>behind Maxwell</b> • Mahood <i>Making your own swarm trap**</i> , <b>Maxwell 117</b> • Long <i>The chemistry behind feeding bees</i> , <b>Maxwell 107</b> • Binnie <i>Viruses, varroa, and virulence: What makes bee parasites deadly</i> , <b>Maxwell 106</b> • Bartlett
3:10- 3:40	Break
3:40- 4:30	<i>Insect apocalypse</i> , <b>Rollins Suber</b> • Berry <i>Different races species of Apis</i> , <b>Rollins Hatcher</b> • Hodges <i>Discussing the Journeyman exam</i> , <b>Maxwell 109</b> • Dix <i>How to find DCAs using a mechanical drone</i> , <b>behind Maxwell</b> • Mahood <b>Discussing the Certified exam</b> , <b>Maxwell 113</b> • Garrison <i>Apitherapy</i> , <b>Maxwell 107</b> • Cahill-Roberts <i>Your Pollinator Garden</i> , <b>Maxwell 106</b> • Griffin
4:40- 5:30	<b>Plenary lecture: Pesticides and Pollinators</b> , <b>Rollins Suber</b> • Traynor
5:30	<b>Awards and presentations</b> , <b>Rollins Suber</b> • Honey show, Master beekeeper program levels, Welsh honey judges. Please join us for celebratory hors d'oeuvres and cocktails following the awards and presentations.

\*\*Students will build and take home a swarm trap. Limited to the first 20 applicants. Note: registrants must sign up for a class time to ensure attendance is equitably spread, 10 per class. Check your intention to attend this workshop on the registration form. An additional course fee of \$30 per participant will be collected at registration to cover costs for materials.

## SATURDAY, MAY 16, 2020

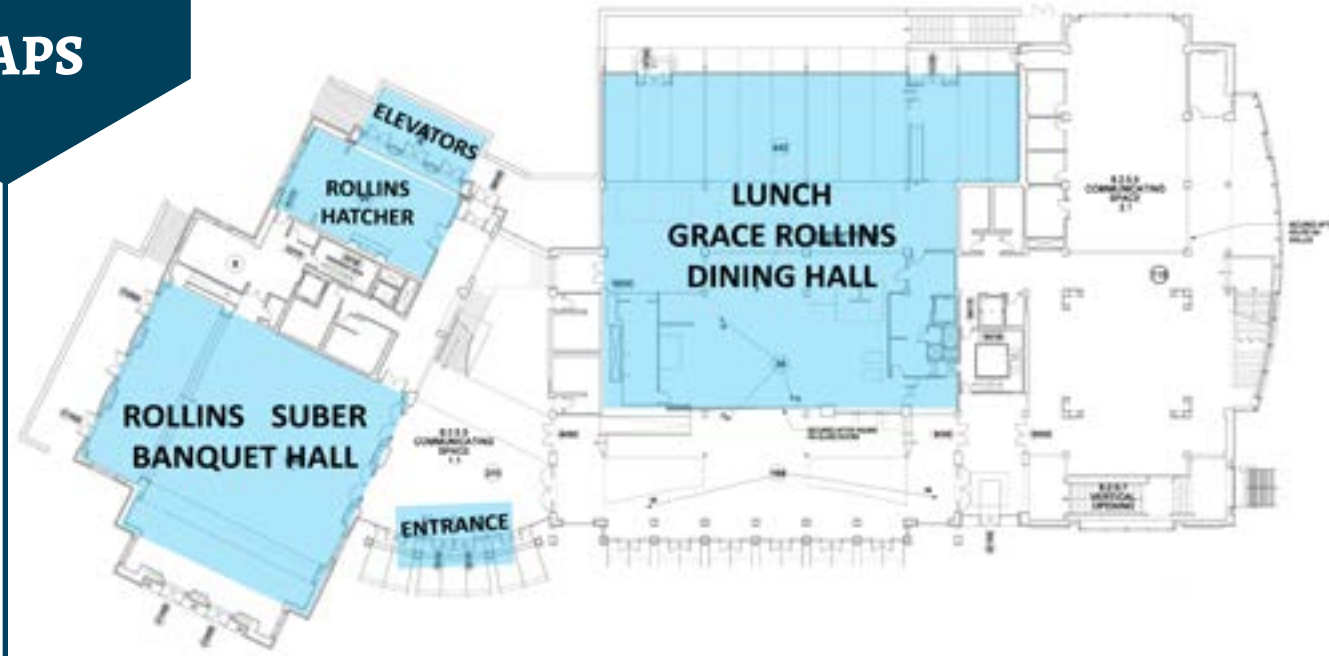
Today's plenary lectures are all in Rollins Suber and open to everybody.

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>Bee Breeding: Problems and promises of Darwinian beekeeping</i> • Bartlett
9:10-10:00	<i>Honey: From ancient civilizations to modern delicacy</i> • Traynor
10:00-10:30	Break
10:30-11:20	<i>Why is Nosema no longer Nosema?</i> • Hayes
11:30-12:20	<i>Fossils, honey bee biodiversity and sustainable food production</i> • Crewe

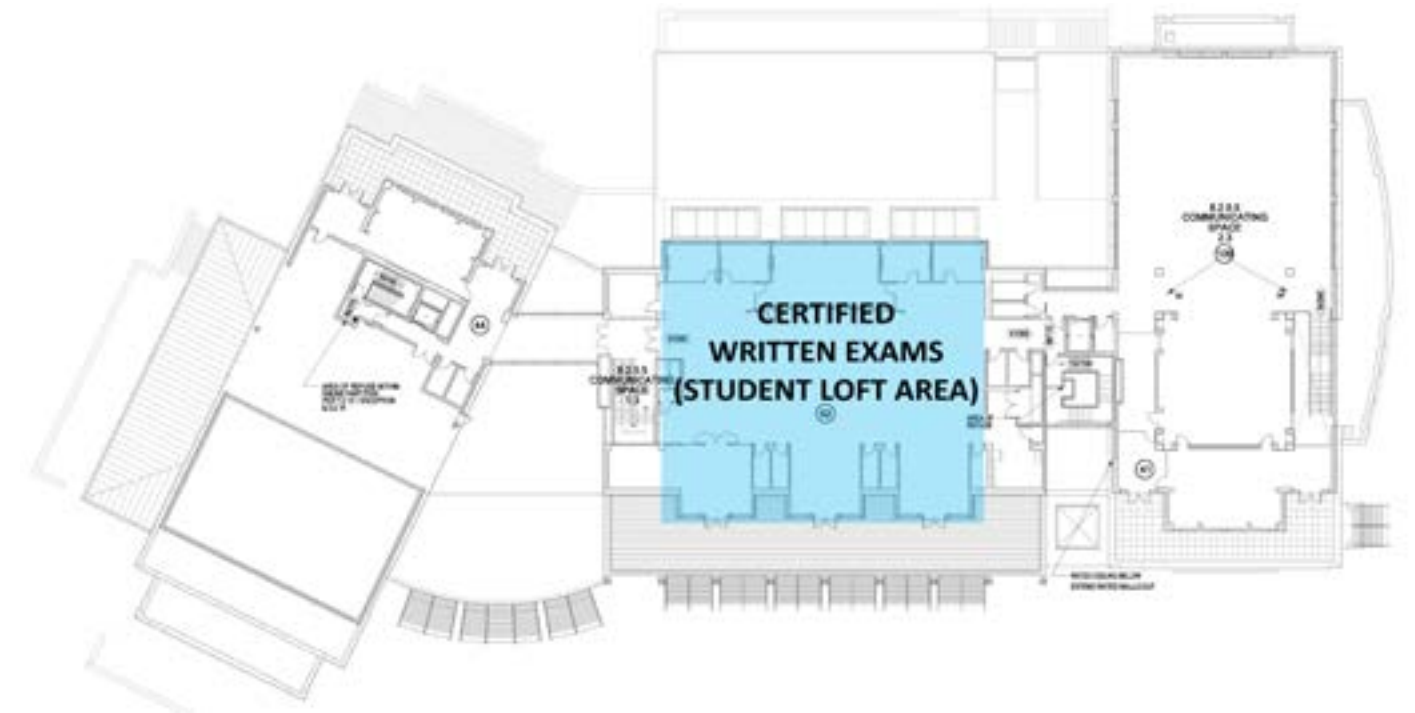
Honey show entries ready for pick-up. Adjourn, safe journeys, and see you next year!



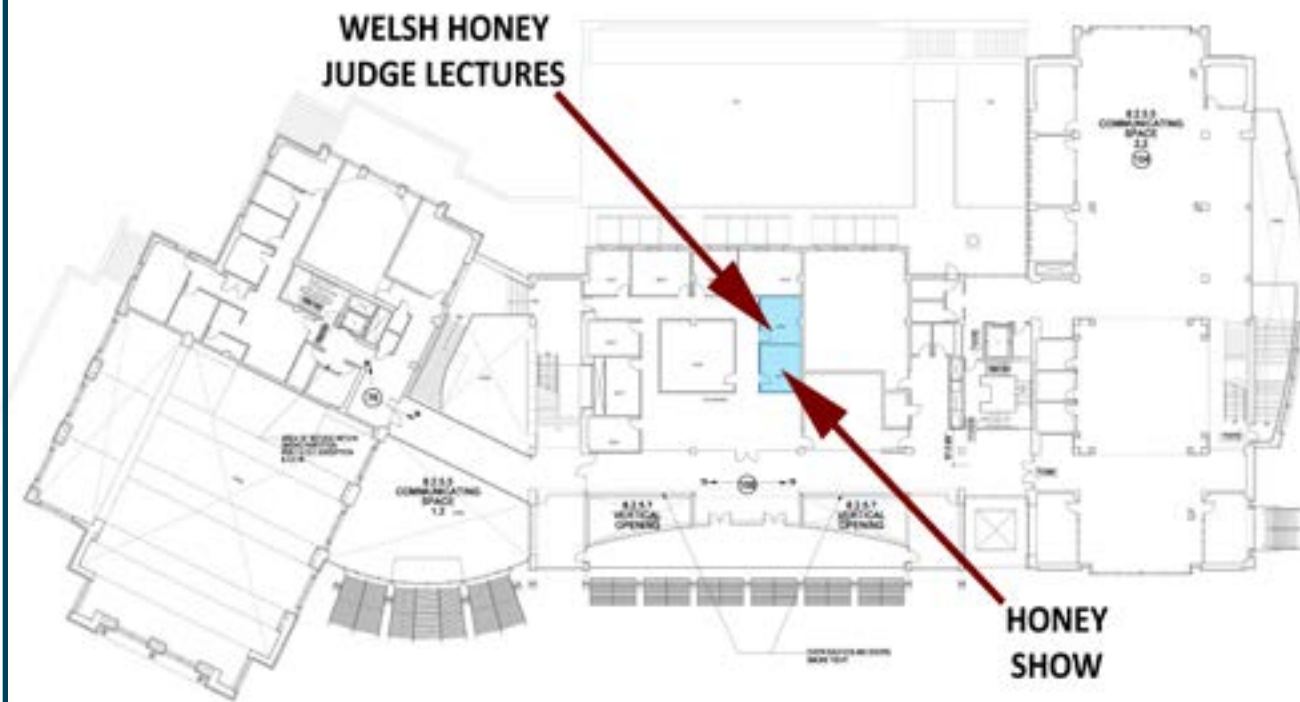
Rollins First Floor



Rollins Third Floor



Rollins Second Floor



Maxwell First Floor

