

ENY 6934
The Business of Beekeeping
Every Spring
3 credits

ENY 6572 Apiculture I is a prerequisite for this course.

***This course is co-taught with ENY 4932.**

Instructor: Cameron Jack, PhD

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Special Note on Contact via Email: Due to UF privacy laws, you must use your GatorLink account or the Canvas mail system when emailing the Instructor or TA. Emails sent from other accounts (gmail, hotmail, etc.) will not be answered by the Instructor or TA.

Office Hours: By appointment.

Course Description: This course will provide an overview related to the management of a commercial beekeeping operation. This course will provide an overview of the ways to generate revenue in beekeeping, the steps of creating an effective business plan and many of the rules and regulations of which beekeepers should be aware.

Course Learning Objectives:

1. Compare the types of beekeeping operations and the different ways to generate revenue in beekeeping.
2. Create a business plan according to the goals, revenue streams and interests of the beekeeper.
3. Identify the federal and state requirements associated with operating a beekeeping business.
4. Summarize the steps of hiring and managing employees.
5. Describe the transportation requirements of hauling honey bee colonies and the considerations for commercial pollination services.
6. Create an extension article that will teach correct beekeeping best management practices for non-technical commercial beekeeper audiences.

Required Readings:

1. Jack, C. and J. Ellis. 2021. Integrated Pest Management Control of *Varroa destructor* (Acari: Varroidae), the Most Damaging Pest of *Apis mellifera* L. (Hymenoptera: Apidae) Colonies. *Journal of Insect Science* 21(5): 6.
2. Evans, E. A. 2008. Primer for Developing a Farm Business Plan. University of Florida EDIS. FE720
3. Ahn, S., O'Donougue, A., House, L., and R. Goodrich-Schneider. 2014. How to Start a Food Business: Writing a Business Plan. University of Florida EDIS. FSHN14-12

4. Bhatia, S.; Baral, S.S.; Vega Melendez, C.; Amiri, E.; Rueppell, O. Comparing Survival of Israeli Acute Paralysis Virus Infection among Stocks of U.S. Honey Bees. *Insects* 2021, 12, 60. <https://doi.org/10.3390/insects12010060>
5. Lewis, H. 2012. *Basic Accounting: Guidance for Beginning Farmers*. National Sustainable Agriculture Information Service.
6. Lewis, H. 2012. *Financing Your Farm: Guidance for Beginning Farmers*. National Sustainable Agriculture Information Service.
7. Noordyke, E.R. and J.D. Ellis. 2021. Reviewing the Efficacy of Pollen Substitutes as a Management Tool for Improving the Health and Productivity of Western Honey Bee (*Apis mellifera*) Colonies. *Front. Sustain. Food Syst.* 5:772897. doi: 10.3389/fsufs.2021.772897
8. United States Department of Labor. *Cultivating Compliance: An Agricultural Guide to Federal Labor Law*. WH15220714
9. Alger SA, Burnham PA, Lamas ZS, Brody AK, Richardson LL. 2018. Home sick: impacts of migratory beekeeping on honey bee (*Apis mellifera*) pests, pathogens, and colony size. *PeerJ* 6:e5812 <https://doi.org/10.7717/peerj.5812>
10. Goodrich, B., Williams, J., and Goodhue, R. 2019. The great bee migration: supply analysis of honey bee colony shipments into California for almond pollination services. *Amer. J. Agr. Econ.* 101(5): 1353–1372; doi: 10.1093/ajae/aaz046
11. Zettel-Nalen, C. M. and J. D. Ellis. 2010. *Theft, Vandalism, and Other Related Crimes in the Beekeeping Industry: A Guide for Beekeepers*. University of Florida EDIS. ENY157

Textbook (Recommended): Flotum, K. 2018 (revised from 2011). *In Business with Bees: How to expand, sell and market honey bee products and services including pollination, bees and queens, beeswax, honey and more*. Quarry Books. Beverly, MA, 158 pp.

Lectures: This is a fully online, Canvas-based course. The website for the syllabus, all lectures, reading materials, announcements, tests, etc. will be posted on eLearning: <http://lss.at.ufl.edu>. All lectures for this course are narrated presentations and will include videos and supplemental readings. We will provide text from all the narrated presentations, but you should pay close attention, as knowing and understanding the spoken information is critical for success in this course. All lectures and tests will be delivered online in Canvas.

Please note that all video clips and photographs are copyrighted and are NOT to be used outside of this class and may be used only this semester. Please do not copy or distribute these photographs or video clips. All class notes are provided for educational use only.

Course Notifications and Communication: All course communications (assignments, announcements, test information, etc.) will be made via the Announcements in Canvas. Please ensure that your Canvas profile is set to receive notifications (i.e. please check the appropriate box to receive all notifications). To do this, click on your name in the upper right corner of the Canvas homepage after logging into Canvas. Next, click “notifications” on the left. This will take you to the Notification Preferences page. Then, click the check symbol for at least the following notifications: Due Date, Course Content, Announcement, and Grading.

Students are encouraged to post general questions on topics taught in the class under the General Questions thread. The instructor and/or the TAs will respond to the questions. Other students are also encouraged to respond to the questions. Private questions should be sent to the TAs via e-mail.

Everyone is busy, so please do not expect immediate responses to emails or discussion posts. The instructor and TAs will do our best to respond within 24 hours during the week and 48 hours on weekends. We will also do our best to grade assignments within one week of the due date.

Course Schedule: This course is offered via Canvas as a distance education course. To stay on track, students must adhere to the course schedule.

| Module | Video Content | Weekly Readings | Module Assessments | Critical Thinking Exercises | Interview with Beekeeper | Business Plan Assignments | Commercial Beekeeping EDIS |
|--|---|---|--------------------|-----------------------------|---------------------------------------|----------------------------------|----------------------------------|
| Getting Started | Welcome video; How to be successful in this course | Course syllabus; Tips for success | January | | | | |
| Types of Beekeeping Operations | Backyard; Sideline; Commercial; Transition and effort | Jack and Ellis, 2021; Textbook: 8-16 | January | | | | |
| Ways to Generate Revenue in Beekeeping | Bee production; Honey producers/packers; Queen producers; Bee removal; Beekeeping supplies distributors, Commercial pollination; Regulatory | Textbook: 66-90 | January | January | Identify Commercial Beekeeper January | | EDIS Topic January |
| Creating a Business Plan | Assistance and training; Goal setting; Business planning; Writing a business plan | EDIS: Developing a Business Plan; Writing a Business Plan | February | | | | |
| Starting a Business | Selecting a legal structure; Registering name and taxes; Licenses and permits | Bhatia et al., 2021; Textbook: 17-35 | February | February | | | |
| Financial Structure | Financial advisor; Bookkeeping basics; Financial statements; Budgeting; Making money with bees | Basic Accounting; Financing your Farm | February | | | | |
| Federal and State Requirements | Rules and regulations for keeping honey bees; Federal taxes, State and local taxes; Labor laws | Noordyke and Ellis, 2021; Cultivating compliance | February | February | | | |
| Hiring and Managing Employees | Contractor or employer; Steps for hiring an employee; Hiring foreign employees; Employee rights and benefits | | March | | Beekeeper Interview Report March | | 1 st Submission March |
| ----- Spring Break ----- | | | | | | | |
| Insurance | Overview of insurance types; Liability; Farm insurance | Alger et al., 2018 | March | March | | 1 st Submission March | Peer Review March |

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|--------------------------------|---|--|-------|-------|--|---------------------------|--------------------------------|
| Transportation Requirements | Moving colonies; State regulations; License and weight requirements; Commercial bee hauling and subcontracting | Goodrich et al., 2019 | March | | | Peer Review March | |
| Almond Pollination | Finding an almond grower; Preparing bees for almond pollination; During pollination contract; End of pollination contract | EDIS: Crimes in Beekeeping Industry Textbook: 104-109 | April | | | | |
| Bottling Honey and Food Safety | Bottling honey; Commercial honey house requirements; Commercial honey labeling requirements | Textbook: 43-65 | April | April | | Final Submission April | Final EDIS Submission April |

Evaluation: The course grade is based on total points earned out of 750 possible points.

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|--|---|------------|
| Module assessments | 15 points each × 11 assessments | 165 points |
| Section critical thinking exercises | 45 points each × 5 exercises | 225 points |
| Identify commercial beekeeper to interview | 15 points | 15 points |
| Commercial Beekeeper interview report | 75 points | 75 points |
| Submission of your peer evaluations of two of your peers' Business Plans | 10 points × 2 peer reviews (you get 10 points per peer review you submit) | 20 points |
| Final draft of your Business Plan | 100 points | 100 points |
| Commercial Beekeeping EDIS | 100 points | 100 points |
| | Total Course Points | 700 points |

Grades and Grade Points

For information on current UF policies for assigning grade points, see catalog.ufl.edu/UGRD/academic-regulations/grades-gradingpolicies/.

| FINAL GRADING | | |
|---------------|--------------|---------------------------------------|
| % grade | Letter grade | Points needed to achieve letter grade |
| 100-93 | A | ≥ 651 |
| 90-92 | A- | 630 – 650 |
| 87-89 | B+ | 609 – 629 |
| 83-86 | B | 581 – 608 |
| 80-82 | B- | 560 – 580 |
| 77-79 | C+ | 539 – 559 |
| 73-76 | C | 511 – 538 |
| 70-72 | C- | 490 – 510 |
| 67-69 | D+ | 469 – 489 |
| 63-66 | D | 441 – 468 |
| 60-62 | D- | 420 – 440 |
| 0-59 | E | 0 – 419 |

Assignments:

(1) Module Assessments: There is a 15-point assessment associated with each of the eleven modules in this course. These assessments are *open note* (i.e. you are allowed to use class lectures, books, websites, etc. while taking the assessments). The assessments will be composed of true/false and multiple choice questions. **The assessments 1) open the Saturday morning after the previous section ends, 2) are timed (30 minutes each), and 3) are due on the following Friday at 11:59 pm on the date listed in the course schedule.** These are individual assessments so please do your own work and do not work in groups or share your answers. There is a large bank of test questions for each assessment and the assessment questions are selected randomly for each student. You will receive a 5-point deduction for each day a module assessment is late.

The first module assessment is a syllabus quiz on the “Getting Started” module. You need to read the syllabus and answer quiz questions related to it before you are able to advance to the next module. This quiz will show you how your online assessments will be formatted as well as allow you to demonstrate that you understand how this course works and important due dates.

(2) Critical Thinking Exercises: The exercises are designed to encourage you to think critically about the content presented in the module lectures. The critical thinking exercises are worth 45 points each. There are separate exercises designed for graduate students incorporating additional questions from the scientific journal articles assigned to that section. These are individual exercises so please do your own work and do not work in groups or share your answers. All of the critical thinking exercises are open note and untimed. You can close and reopen the exercise as many times as you would like until the due date (see course schedule), but you will not be able to make any changes once you have officially submitted your final exercise. **The exercises are due at 11:59 pm on the date listed in the course schedule.** You will receive a 5 deduction for each day a module assessment is late.

(3) Commercial Beekeeper Interviews: One of the best ways to learn about commercial beekeeping is to talk to actual commercial beekeepers! This semester, you will have the opportunity to find a commercial beekeeper and talk to them about their own operation. Find out how they diversify their operation, what challenges they face and what advice they would give to someone starting out their beekeeping enterprise. Commercial beekeepers are incredibly busy and may not always be the easiest people to reach. However, at the end of the day, you have the same resources available to find commercial beekeepers that the Instructor and TAs have. Thus, the responsibility of finding a beekeeper lies with the student. That said, please contact the Instructor or TA if you need help finding a commercial beekeeper after doing your best to locate one yourself.

The Commercial Beekeeper Interview grade is composed of two components.

1) Identifying a commercial beekeeper to interview (15 points) – We want to know who you plan to interview and see a written confirmation that the beekeeper has agreed to be interviewed. To complete this part of the assignment, please provide 1) the name of the beekeeper, 2) when you plan to interview the beekeeper, 3) contact information for the beekeeper (phone number/email), and 4) proof of consent (can be an image of text message or screenshot of email) by the due date noted in the course schedule.

2) Interview Report (75 points) – You are expected to produce a written report containing the notes and highlights of the interview. During the interview you can discuss how their operation is managed, what the main revenue streams of their operation is (pollination, honey production, etc.), key obstacles the beekeeper must overcome in his/her operation, etc. **Your visit with the beekeeper should help you write your own business plan**, so keep that in mind as you are talking with the beekeeper.

A grading rubric will be provided in Canvas to facilitate development of your commercial beekeeper interview report. **Five points will be deducted from reports every day past the due date (see the course schedule) that the report is submitted.** Please do not wait until the last minute to schedule your interview.

(4) Business Plan: An effective business plan is at the heart of any successful business. We've all heard the adage, "If you fail to plan, you plan to fail." Well, this semester we are going to prepare for your future by creating an effective business plan. Regardless of whether you actually start a beekeeping business in the future, the concepts of a good business plan are transferable to many other parts of life.

Your Business Plan must include:

- Executive summary
- Company description
- Products and services
- Marketing plan
 - An image of your logo (It's OK if you do not have amazing graphic design skills, just make sure it is neat and you do your best.)

- Operational plan
- Human Resource Plan
- Financial plan
- Subheadings to differentiate between activities or meetings you experienced
- Page numbers
- 12-point, professional font
- Double spaced
- 4-5 pages long (including pictures and/or figures)

A grading rubric will be provided in Canvas to facilitate development and peer review of the beekeeping experience report. **Five points will be deducted from reports every day past the due date (see the course schedule) that the report is submitted.** Please do not wait until the last minute to produce your business plan.

The business plan grade (up to 120 pts) is composed of two components.

1) 20 points for submitting your peer evaluations of two other students' business plans (10 points per report) – After submission of all students' business plans, you will be randomly assigned two other students' business plans to peer evaluate using the rubric at the end of this syllabus. You will be awarded 0, 10, and 20 points for submitting zero, one or two peer reviews respectively. Your evaluations of two of your peer's business plans are due by the date listed in the course schedule. This is your chance to help your fellow students, so please offer a respectful and useful critique of their work.

3) 100 points from the Instructor and TA's reviews of your business plan – The two peer reviews offered by the two students in the class based on the business plan rubric will help serve as a reviewing guide. The Instructor or TA will see if you made the appropriate or necessary changes to your plan suggested by your reviewers and also read your plan to assign the final grades based on the rubric provided in the Final Business Plan page.

5) Extension Project: Students enrolled in ENY 6934 are required to produce an additional extension project which will be in the form of an EDIS document (<http://edis.ifas.ufl.edu/>). It should have the potential for publication through the University of Florida's extension branch (Cooperative Extension Service). EDIS documents are designed to be informational or instructional how-to documents for the public. Your document should be written on a topic of your choice **meant to provide useful information for commercial beekeepers**. Students should refer to the "Publishing FAQs" under "Instructions for Authors" on the EDIS website for publication guidelines. You **must** check with the TA before beginning your project so that they can verify that such a document does not already exist on your topic. The instructor or TA can provide ideas for selecting a topic. **A grading rubric will be provided to facilitate development of the extension project.**

Here are some examples of published EDIS documents that could be useful for you as you think of topics for your document:

- Theft, vandalism and other crime in the beekeeping industry - <https://edis.ifas.ufl.edu/publication/IN872>
- Building bear fences for your apiary <https://edis.ifas.ufl.edu/publication/IN1318>
- Using nucs in your apiary <https://edis.ifas.ufl.edu/publication/IN869>

This written report should convey scientific information in a way that a high school student could understand. Figures are extremely helpful in extension documents, and students are encouraged to include as many figures as necessary to explain a topic. You must obtain use permission from the owner of any figures you include in your final report if the figure is not original to you.

There are four components of the extension project that compose the completed assignment. Due dates for each component are listed in the course schedule.

- 1) Extension Report Topic Due – The student should identify and record the topic chosen for the EDIS document by completing the Canvas assignment “Extension Report Topic.”
- 2) 1st Submission – This is not a rough draft, but rather is what the student considers the completed document.
- 3) Peer Review – The 1st submission will be shared with other graduate students in the class who will provide a peer review of the report by the due date listed in the course schedule. Each student will peer review two extension reports.
- 4) Final Submission – Students are expected to revise the extension report or production plan per the comments provided during the peer review process. The final report or video must be submitted by the due date shown in the course schedule.

A grading rubric will be provided in Canvas to facilitate development and peer review of the extension project. **Five points will be deducted from the final project score every day past the due dates that any of the information requested above is late, regardless of the excuse.** Please do not wait until the last minute to submit your project or meet any of the other deadlines. All points lost will be deducted from the final Extension Project grade.

Grading: Manually graded assignments, including Critical Thinking Exercise questions and the Beekeeping Report, will be graded within two weeks of the assignment due date. All other assessments will be graded automatically upon submission.

Optional content: In addition to the assignments above, optional resources are provided throughout the course modules, labeled as “supplemental content.” These resources are not required for course completion and are solely included for enrichment opportunities.

Minimum technology and skills: The only software used for this course is Canvas. All learning materials will be available to download in the course modules. Minimum technological skills required for this course include the navigation of Canvas. Additionally, students may desire to send emails and use word processing programs for assignments.

Absences and Make-Up Work: Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/

Online Course Evaluation Process: Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at gatorevals.aa.ufl.edu/public-results/.

Academic Honesty: UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received

unauthorized aid in doing this assignment.” The Honor Code (sccr.dso.ufl.edu/process/student-conduct-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Services for Students with Disabilities: Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, dso.ufl.edu/drc) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

Campus Resources:

Health and Wellness

U Matter, We Care: If you or someone you know is in distress, please contact <mailto:umatter@ufl.edu>, 352-392-1575, or visit umatter.ufl.edu/ to refer or report a concern and a team member will reach out to the student in distress.

Counseling and Wellness Center: Visit counseling.ufl.edu/ or call 352-392-1575 for information on crisis services as well as non-crisis services.

Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or visit shcc.ufl.edu/.

University Police Department: Visit police.ufl.edu/ or call 352-392-1111 (or 9-1-1 for emergencies).

UF Health Shands Emergency Room / Trauma Center: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; ufhealth.org/emergency-room-trauma-center.

Academic Resources

E-learning technical support: Contact the [UF Computing Help Desk](https://helpdesk@ufl.edu) at 352-392-4357 or via e-mail at helpdesk@ufl.edu.

Career Connections Center: Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services career.ufl.edu/.

Library Support: cms.uflib.ufl.edu/ask various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center: Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring. teachingcenter.ufl.edu/

Writing Studio: 2215 Turlington Hall, 352-846-1138. Help brainstorming, formatting, and writing papers. writing.ufl.edu/writing-studio/

Student Complaints On-Campus: sccr.dso.ufl.edu/policies/student-honor-codestudent-conduct-code/

Netiquette:

It is important to recognize that the online classroom is in fact a classroom, and certain behaviors are expected when you communicate with both your peers and your instructors. These guidelines for online behavior and interaction are known as netiquette.

Security:

Remember that your password is the only thing protecting you from pranks or more serious harm.

- Do not share your password with anyone.
- Change your password if you think someone else might know it.
- Always logout when you are finished using the system.

General Guidelines:

When communicating online, you should always:

- Treat your instructor and fellow students with respect, even in email or in any other online communication.
- Always use your professors' proper title: Dr. or Prof., or if you in doubt use Mr. or Ms.
- Unless specifically invited, don't refer to them by first name.
- Use clear and concise language.
- Remember that all college level communication should have correct spelling and grammar.
- Avoid slang terms such as "wassup?" and texting abbreviations such as "u" instead of "you".
- Use standard fonts such as Times New Roman and use a size 12 or 14 pt. font.
- Avoid using the caps lock feature AS IT CAN BE INTERPRETTED AS YELLING.
- Limit and possibly avoid the use of emoticons like :).
- Be cautious when using humor or sarcasm as tone is sometimes lost in an email or discussion post and your message might be taken seriously or offensive.
- Be careful with personal information (both yours and other's).
- Do not send confidential patient information via e-mail.

Email Netiquette:

When you send an email to your instructor, teaching assistant, or classmates, you should:

- Use a descriptive subject line.
- Be brief.
- Avoid attachments unless you are sure your recipients can open them.
- Avoid HTML in favor of plain text.
- Sign your message with your name and return e-mail address.
- Think before you send the e-mail to more than one person. Does everyone really need to see your message?
- Be sure you REALLY want everyone to receive your response when you click, "reply all."
- Be sure that the message author intended for the information to be passed along before you click the "forward" button.