School of Agriculture
Trades & Environment

BK 135 QUEEN REARING 5(16-0-16) 3 WEEKS; 98 HOURS

COURSE OUTLINE – JANUARY 2012

INSTRUCTOR: TBA **PHONE:** TBA
OFFICE: TBA **E-MAIL:** TBA

OFFICE HOURS: TBA

PROPOSED/POSSIBLE TEXT/RESOURCE MATERIALS:

Harry H. Laidlaw, Jr., *Contemporary Queen Rearing* (Dadant & Sons, 1979).
Friedrich Ruttner, *Breeding Techniques & Selection for Breeding of the Honey Bees* (British Isle Bee Breeders' Association, 1988).
Lawrence John Connor, *Queen Rearing Essentials* (Wicwas Press, 2009)
Roger A Morse, *Rearing Queen Honey Bees* (Wicwas Press, 1994)
Thomas E. Rinderen, *Bee Genetics and Breeding* (Academic Press, 1986).

PROPOSED/POSSIBLE READINGS:

Friedrich Ruttner, *Breeding Techniques* (British Isles Bee Breeders' Association, 1988).
Mark Winston, *Biology of the Honey Bee* (Harvard University Press, 1991).
L. L. Langstroth, *The Hive and The Honey Bee* (Dadant & Sons; Revised Edition 1992). Chapters 7 and 23.

CALENDAR DESCRIPTION:

This course examines the theory behind queen rearing, management practices involved in producing queens on a commercial scale, and a substantial field experience component.

CREDIT/CONTACT HOURS:

This course consist of 16 hours of lecture and 16 hours of lab time in 1 week; in addition students will complete a 40 hour per week field experience for 2 weeks; a total of 112 hours.

DELIVERY MODES:

Course includes lectures, lab work, and field experience at commercial queen rearing sites.

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OBJECTIVES:

1. To introduce students to the management involved in producing queen bees.
2. To meet industry people and gain first-hand experience in the work involved in this industry.
3. By the completion of this course the student should have a sound understanding of what is required to produce good queen honey bees.

PROPOSED EVALUATIONS:

Exam	35%
Class Participation (including field trip)	40%
Written Project	25%

STUDENT RESPONSIBILITIES:

- Students are expected to be present, on time and actively involved in all aspects of this course. Students are expected to commit the required time to complete this course.
- Submitting assigned work on the dates set by the instructor. Late assignments may be penalized. Requests to reschedule assignments will only be granted under extraordinary circumstances.
- Regular attendance is important to success. The lectures contain important information and interpretations for tests and instructions for assignments and other exercises.

PROPOSED COURSE CONTENT:

1. Breeder Colonies.
2. Cell Cups.
3. Grafting Larvae.
4. Cell Building Colonies.
    - Queenless.
    - Queen Right.
5. Mating Nuclei.
6. Incubation.
7. Caging Queens.

PROPOSED WRITTEN PROJECT: *final details to be determined by course instructor*

Project must include the following information:

1. Name of producer you worked for. A brief description of the operation (i.e. Number of colonies, number of queens, number of packages produced.)
2. Description of the queen rearing cycle including: breeder colonies and grafting.
    a. Description of the management of the cell building colonies used.
    b. Description of the type of mating nuclei, queen banks, incubation (timing, temperature, any other information specific to your placement).
    c. Time that the cells are in each stage.
    d. How often are queens caught out of mating nucleus?
3. This report can also include information on plant species producing nectar and pollen during this time of the year in the areas visited and also information about the pollination aspects of the beekeeper industry in this area.

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Lecture material

- Queen and Drone physiology and anatomy
- Caste differentiation
- Genetics and selection
- Development of open and closed breeding programs
- Nutrition requirements
- Options for rearing (starter/finisher, q-less q-rite, q production vs nuc production, breeders, builders, laying evaluation)
- Instrumental insemination (visit BRF in summer?)

Practical

- Managing Cell Builders
- Selection criteria, Hygenic/SMR assay, stability, gentleness, etc.
- Cell cups, wax/plastic
- Creating cell starter nucs
- Grafting practice, several grafting tools
- Installing cells
- Catching, marking, caging queens

This course will run first week of Mar lecture material, Last week June, First week July practical

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