Texas Master Beekeeper Program
Advanced Level Study Guide

I. Honey Bee Anatomy
   a. Be able to identify internal and external anatomical structures of the honey bee body
   b. Function of different parts of anatomy
   c. Stages of immature development of all sexes and castes of the temperate subspecies

II. Flower Anatomy
   a. Be able to identify parts of a flower
   b. Be able to explain pollination
   c. Resource fidelity

III. Honey Bee Pests
   a. Know scientific names, symptoms of infestation, population dynamics, methods of treatment, etc.
      i. Varroa mites
      ii. Tracheal mites
      iii. Small hive beetle (SHB)
      iv. Wax moth
      v. *Tropilaelaps clareae*
      vi. Bee louse

IV. Honey Bee Diseases
   a. Know scientific names, symptoms of infestation, methods of treatment, etc.
      i. American Foulbrood (AFB)
      ii. European Foulbrood (EFB)
      iii. Nosema (*Nosema apis* and *Nosema ceranae*)
      iv. Chalkbrood
      v. Sacbrood
      vi. Parasitic Mite Syndrome (PMS)
      vii. Deformed Wing Virus (DWV)

V. Pesticide Labels
   a. Know where to find specific information on a label
   b. What must be included on a label
   c. Signal words
   d. Pesticide testing
   e. Registration number vs. Establishment number

VI. Beekeeping Management/Equipment
   a. Swarming/swarm control
   b. Honey production/extraction
   c. Queen management

d. Pest and disease control
e. Nutrition management
f. Varroa management
g. Know proper names and purposes for beekeeping equipment
h. Understand what Integrated Pest Management is and how it is successfully employed in an apiary and honey bee colonies

VII. Honey Bee Biology
a. Africanized honey bees
b. Species of honey bees under the genus *Apis* – scientific and common names, nest structure, native ranges, behavior and life history
c. Know the major subspecies of *Apis mellifera*- scientific and common names, nest structure, native ranges, behavior and life history
d. Queen mating
e. Pheromones of the colony
f. Levels of sociality and defining characteristics
g. Colony genetics and relatedness
h. Polyandry
i. Age polyethism
j. Trophallaxis
k. Behaviors regulating the thermodynamics of the colony
l. Resource and colony reproduction communication behaviors
m. Nectar processing within the colony

VIII. Other Bees and Wasps
a. Know families and some major defining characteristics
b. Sociality of common bees and wasps
c. Nest sites, diet, and life history

IX. Other
a. Historical
i. Warwick Kerr, C.L. Farrar, Tom Seeley, Martin Lindauer, etc.
b. Texas Master Beekeeper Program
i. Requirements
c. Texas Apiary Inspection Service
i. Primary responsibilities