1. **Purpose**

The purpose for this regulation is to effectively establish and maintain rodent breeding colonies at North Carolina Central University (NCCU). The proper establishment of these breeding colonies will result in a higher offspring yield and the increased survival of pups. In addition, proper practices in establishing and maintaining rodent breeding colonies will avoid the stress of overcrowding and rearing of pups of different ages in the same cages.

2. **General Principles**

All North Carolina Central University researchers (faculty, staff, and students) must adhere to the regulation to effectively establish and maintain rodent breeding colonies. Rodent breeding systems are directly impacted by recommended cage sizes and densities in Chapter 3 of the 8th Edition of the Guide for the Care and Use of Laboratory Animals (Guide).

2.1 It is clearly stated that institutions should use the Guide's space recommendations as a starting point for determining caging requirements. Cages on mouse racks at NCCU have floor space of 75 or 83 sq. in and those on rat housing systems are 160 or 180 sq. in.

2.2 According to the Guide, female mice with a litter require 51 sq. in of floor space and rat dams with pups need 124 sq. in. Thus only one mouse or rat dam with pups can inhabit a cage designated for the species at NCCU. Therefore, pregnant dams housed in groups must be transferred to an individual cage prior to parturition.
3. **Protocol**

Two types of breeding systems are available for investigators at NCCU. The two are monogamous and trio breeding systems which may be used to establish and maintain rodent colonies. A more intensive program of harem breeding may be used in special (rare) cases but only after approval by the IACUC.

The IACUC will only consider approval after review of a comprehensive plan to expand and maintain the colony using this intensive breeding practice. The plan should describe the adequacy of staff coverage, daily monitoring activity and the maintenance of detail breeding records.

3.1 Trio breeding entails the use of 1 male to 2 females. Trio breeding groups are best suited for the propagation of inbred, transgenic, or other strains of mice which generate small numbers of pups or are difficult to breed.

3.2 Monogamous mating is defined as 1 male to 1 female. Outbred crosses, hybrid crosses, intra?specific crosses or any other crosses that produce larger litters are best propagated by a monogamous breeding strategy.

4. **Setting up Breeding Groups**

4.1 Cages are set up for either Trio breeding (1 male and 2 female) or monogamous mating.

4.2 Cages are checked daily for pregnant dams

4.3 Each pregnant dam from trio breeding groups is to be moved to a new cage with nestlets and/or tunnels prior to parturition (Gestation is 18 to 21 days). A new female may be added, once the pregnant dam is removed, to reconstitute a trio mating group to continue breeding. In monogamous mating the dam and sire remain in the cage with the pups. However, the cage must be closely observed to ensure that the sire does not harm the pups. Of note, in the monogamous mating system an opportunity for mating during the postpartum estrus period (14?28 hours post parturition) can help to maintain the breeding colony.

4.4 After 21 days wean and separate males from female pups from the parental cage and by gender until ready to enter the breeding program. Some pups may require as long as 28 days for weaning, thus lengthening the period should be done on a case by case basis to avoid parent and offspring breeding. This should be noted in the breeding protocol.