

### **Homework One**

BAT [bat] winged mammal of the order Chiroptera, which includes 900-1,000 species classified in about 200 genera and 17 families. Bats range in size from a wingspread of over 5 ft (150 cm) to a wingspread of less than 2 in. (5 cm). They are found in nearly all parts of the world but are most numerous in the tropics; there are about 39 species in the United States. Most bats are economically valuable because of the large number of insects they consume. The body of the bat is mouselike and usually covered with fine fur. The face varies greatly from one species to another; many species have complex appendages on the snout and projections, or false ears, in front of the true ears; the ears themselves are often very large and elaborately convoluted. These facial structures are part of the sensory apparatus that emits and receives sound vibrations.

Some bats are solitary, living in caves, crevices, hollow trees, or attics; other species are communal, with thousands or even millions of bats roosting together in a cave or on branches in a section of forest. In some species of communal bats, the entire colony leaves the roost together in the evening and returns together in the morning; in others, individuals come and go at different times. Bats of northern regions migrate, hibernate, or both in winter. In most species, males and females do not associate except during the mating season. Females of most species bear a single young in the summer of each year. The young are then carried by the mothers for a few days, after which they are left in the roost when not nursing; they begin to fly in a few weeks. The life span of some bats is 20 years in captivity.

Bats are the only mammals capable of true flight, that is, flight powered by muscular movement as distinct from gliding. The wing is a double membrane of skin stretched between the enormously elongated bones of four fingers and extending along the body from the forelimbs to the hind limbs and from there to the tail. The thumb is small, clawed, and free from the membrane. The hind limbs are small and may be rotated in such a way that the knees bend backward rather than forward, as in other mammals; this is presumably an adaptation for takeoff and flight. Bats at rest hang head down, grasping a twig or crevice with their clawed feet; they take off into flight from this position.

Nearly all bats are nocturnal and many live in caves; although they see well, they rely primarily on their highly developed hearing, using echolocation (sonar) to avoid collisions and to capture insects in flight. The bat emits high-pitched sounds (up to 100,000 hertz) that echo from objects it encounters; the echo provides the bat with information about the size, shape, and distance of the object. The rate at which bats emit these squeaks is sometimes as high as 200 per second. Blinded bats easily find their way through complex obstacle courses, but deafness leaves them helpless.

(Text from: [www.encyclopedia.com/html/b/bat.asp](http://www.encyclopedia.com/html/b/bat.asp))