



BIOL 1114 Exam #2 (PREVIEW) March 12, 2018

Use a #2 pencil to fill in the information on your NCS answer sheet.

- 1) Enter your **last name** and **first name** as indicated and darken the corresponding circles
 - 2) Enter your **CWID** in the spaces indicated for “Student ID” and darken the corresponding circles.
 - 3) Enter **1812** in the spaces indicated for “**Course number**” and darken the corresponding circles.
 - 4) Enter the **form** of the exam **001 or 002** in the spaces indicated for “**SEC**” and darken the corresponding circles
 - 5) Write your **O-Key Account Username** above the words “Last Name”.
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Hurricanes Harvey, Irma & Maria left some of the worst damage in nearly a century in Texas, Florida and the Caribbean. On the island of Puerto Rico, for example, many species of reptiles, birds and plants were decimated in size.

On tiny Caja de Muertos (Coffin Island) off the southern coast of Puerto Rico, Hurricane Maria caused 80% of the iguana (a reptile) population to randomly perish by drowning.

All Puerto Rican iguanas are land iguanas. Unlike the Galápagos Islands, Puerto Rico lacks (salt water dwelling) marine iguanas (a separate species) for unknown reasons.

A marine iguana suddenly climbs onto a rock in search of a meal of algae, pushing a frog perched upon the rock into the ocean (3.5% salt).

It has been reported that marine iguanas can remain submerged in the very cold waters surrounding the Galapagos, for up to one hour.

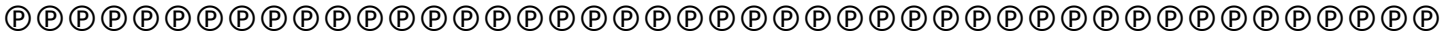
Green iguanas (*Iguana iguana*) often run undetected through ripe green fields, permitting the iguanas to feed upon insects more easily. The color of the green iguana is inherited.

Variation, in plants, refers to variation in color on the leaves (and, sometimes, other parts of the plant). Variegated plants are usually adapted for the understory of rainforests, although they are frequently used in horticultural displays. Chameleon plant (*Houttuynia cordata*) is a species in which different individuals may be more or less variegated. A researcher discovers a population of chameleon plants in which 70% of the population is variegated (green leaves with white edges) and 30% is not variegated (solid green leaves). Chameleon plants grow best in moist environments.

The researcher is out at night, and is using a red-light flashlight to make her way back to camp.

The researcher covers a chameleon plant so that it is in complete darkness, then measures the metabolic O₂ production of the plant.

The researcher tries to cross-pollinate a chameleon plant with another similar-looking plant. The cross is able to produce viable seeds, but those seeds grow into plants that are infertile (they cannot produce seeds themselves).



Chameleon plants are an invasive species, able to establish new populations outside their native range, but they do not spread from the well-watered researcher's garden to the arid (dry) environment where the researcher lives.

After learning that the chameleon plants are invasive, the researcher sprays the population in their garden with atrazine, a herbicide that binds to and prevents the function of photosystem II.

A wild population of raccoons is split into one large and one small population when a new highway is constructed through their habitat. The highway connects to a nearby biomedical lab.

The biomedical lab improperly disposes of digoxin, a drug that inhibits (blocks) the Na⁺/K⁺ pumps in neurons in and around the heart. Some of the raccoons ingest the digoxin, resulting in decreased heart rate, lethargy, and in severe cases, death.

Raccoons, like many nocturnal animals, have very high-resolution vision, but are nearly colorblind.

The highway closes down, and the two raccoon populations merge into a single population. A researcher determines that they are still the same species.

A 30 year old man was bitten by coral snake (*Micrurus tener*), while lifting wood from the ground. The snake injected venom and the man is exhibiting symptoms including loss of muscle strength and slow movements.

Coral snakes have very small fangs compared to rattle snakes, yet they are successful predators.

A population of cheetahs in Africa decreased in the 1980s-90s and researchers found that genetic variation was significantly reduced.

Prof. Moriarty (nemesis of Sherlock Holmes) stated that "The body makes more than 50 pounds of ATP a day!" Moriarty later bragged that he could kill Holmes with 10 ng/mL blood levels of pufferfish toxin, which is known to block Na⁺ channels closed in axons.

A species of hummingbird visits only a particular species of plant with yellow flowers, and its beak has exactly the same length as the flowers depths' in that plant. The hummingbird eats the nectar of the flowers while collecting pollen that it usually transfers to other flowers.
