**BIOL 1114   Exam #1 (Preview)   February 11, 2019**
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The following material will appear on the upcoming exam. Use this preview to familiarize yourself with the material, and guide you in studying. Be sure to look up the definitions of any words you do not know. You are free to discuss this material or ask questions about it.

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 **1911** (where n = exam number = 1, 2, 3, or 4) in the spaces indicated for "**Course number**" and darken the corresponding circles.
4) Enter the **form** of the exam **001** in the spaces indicated for "**SEC**" and darken the corresponding circles
5) Write your **O-Key Account Username** above the words "Last Name".

A group of Italian medical researchers suspected that wine consumption may have some correlation with heart disease, therefore they randomly collected medical histories and wine-drinking habits (number of glasses of wine per week) from 2000 patients in a grape wine-growing region for several years. The result was represented by the following scatterplot:
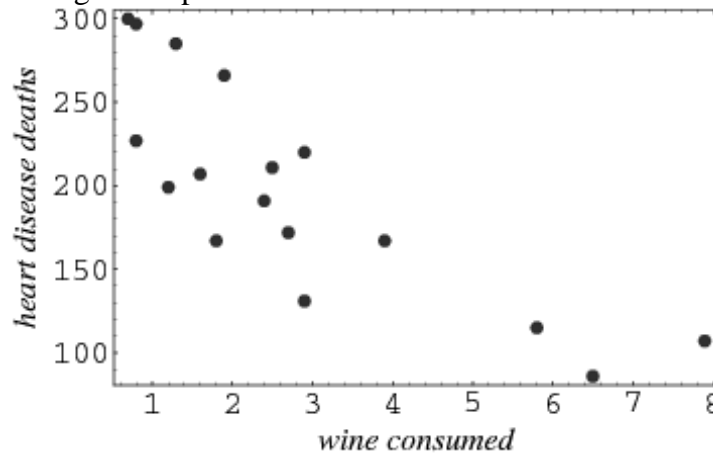
A journal referee returns the manuscript and wants to know what ingredients in the wine may be causing these effects.

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Bergman's Rule states that within broadly distributed groups of organisms, populations and species of larger size are usually found in colder environments, and species of smaller size are found in warmer regions.

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7. Arthur has two pets in his room, a parrot and a frog. The heater in his room is out of control and the temperature has increased going from 24˚C (75˚F) to 40˚C (104˚F).

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In the back of the pet store, an iguana is drawing heat from a heat plate that it is laying on.

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Compound X is known to block cellular respiration. You have discovered that adding pyruvate to cells that were treated with compound X allows respiration to continue. You want to confirm that compound X is inhibiting cellular respiration. You place 10 mg/ml of compound X in the growth medium for your experimental group at a temperature of 37 ℃.
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The bee hummingbird (*Mellisuga helenae*) is the smallest bird species on record (around 5 cm), and native to tropical (warm, wet) environments in Cuba. The bee hummingbird feeds from the nectar produced by nine different plant species, including *Hamelia patens*. The common ostrich (*Struthio camelus*) is the largest bird species (around 210 cm), and lives in hot, dry environments.

Ostrich A drinks 1500 ml of water in a day while ostrich B drinks 500 ml of water that same day.
Hummingbirds consume vast amount of nectar which contains mostly glucose molecules.
A injured ostrich has reduced blood flow, which reduces the amount of oxygen delivered to cells.
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After basking on warm rocks, both a larger and a smaller frog return to the cold stream water. A cell (0.9% salt concentration) from one of the frogs falls off its body and into a fresh water pond (0.3% salt concentration).
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Alex likes brewing beer, so he is using alcoholic fermentation performed by yeast.
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Charley the tuna is swimming in a sea where salinity is very high, and temperature is very cold (18 ℃).
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A new species of animal was discovered deep in the rainforest. Physically, the new animal looked like a mammal, but the scientists who discovered it hypothesized that it is a poikilotherm.
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Cardiac muscle cells require energy for contraction and have a much **higher number of mitochondria** per cell than most other cells in the body.
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Yeast cells are useful in promoting alcoholic fermentation of grape juice.
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A species of plant that evolved a toxin to combat predation by grasshoppers is suddenly faced with a problem. A grasshopper has been born capable of eating these plants that were originally toxic to the insect's parents.

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