

# **BIO101: Assignment #1**

Due on Monday, January 24, 2019

*Jones 10:30am*

**Yosuke Hanamura**

## Question 1

**What is the airspeed velocity of an unladen swallow?**



While this question leaves out the crucial element of the geographic origin of the swallow, according to Jonathan Corum, an unladen European swallow maintains a cruising airspeed velocity of **11 metres per second**, or **24 miles an hour**. The velocity of the corresponding African swallows requires further research as kinematic data is severely lacking for these species.

## Question 2

**How much wood would a woodchuck chuck if a woodchuck could chuck wood?**

(a) Suppose "chuck" implies throwing.

According to the Associated Press (1988), a New York Fish and Wildlife technician named Richard Thomas calculated the volume of dirt in a typical 25–30 foot (7.6–9.1 m) long woodchuck burrow and had determined that if the woodchuck had moved an equivalent volume of wood, it could move "about **700 pounds (320 kg)** on a good day, with the wind at his back".

(b) Suppose "chuck" implies vomiting.

A woodchuck can ingest  $361.92 \text{ cm}^3$  (22.09 cu in) of wood per day. Assuming immediate expulsion on ingestion with a 5% retainment rate, a woodchuck could chuck  **$343.82 \text{ cm}^3$**  of wood per day.

## Question 3

**Identify the author of Equation 1 below and briefly describe it in English.**

$$P(A|B) = \frac{P(B|A)P(A)}{P(B)} \quad (1)$$

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## BONUS QUESTIONS

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### Question 4

The table below shows the nutritional consistencies of two sausage types. Explain their relative differences given what you know about daily adult nutritional recommendations.

<i>Per 50g</i>	Pork	Soy
Energy	760kJ	538kJ
Protein	7.0g	9.3g
Carbohydrate	0.0g	4.9g
Fat	16.8g	9.1g
Sodium	0.4g	0.4g
Fibre	0.0g	1.4g

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### Question 5

Listing 1: Luftballons Perl Script

```

1 #!/usr/bin/perl
2
3 use strict;
4 use warnings;
5
6 for (1..99) { print $_." Luftballons\n"; }
7
8 # This is a commented line
    
```

```

9
10 my $string = "Hello World!";
11
12 print $string."\n\n";
13
14 $string =~ s/Hello/Goodbye Cruel/;
15
16 print $string."\n\n";
17
18 finale ();
19
20 exit ;
21
22 sub finale { print "Fin.\n"; }
```

(a) How many luftballons will be output by the Listing 1 above?

99 luftballons.

(b) Identify the regular expression in Listing 1 and explain how it relates to the anti-war sentiments found in the rest of the script.

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