

How Should I Choose my Biostatistics Requirement?

Quick Check

Should I take Biostat 611-612 or Biostat 621-623?

Questions 1 to 10 are intended to assess your current mathematical knowledge. Please **DO NOT USE A CALCULATOR**.

1. Joan is 64 years older than Felipe. Two times Felipe's age plus five times Joan's age equals 488.

- How old is Joan? ____ years
- How old is Felipe? ____ years

2. What is X when $Y = 2X + 18$ and $Y=40$?

3. Simplify $3X + 2 + 1/2X + 3 =$

4. Expand $-2(X+1) =$

5. What is $\sqrt{36}$? _____

6. What is 3^3 ? _____

7. If $\log_2 8 = X$, what is X? _____

8. $\log_{10}(2) + \log_{10}(3) = \log_{10}(?)$

9. What is $\frac{3^4}{9}$? _____

10. What is $\frac{e^{4+6}}{e^{10}}$? _____

Answers: 88, 24; 11; $3.5X + 5$; $-2X - 2$; 6; 27; 3; 6; 9; 1

Question:

Do you feel comfortable with the majority of the mathematical manipulations required in problems 1- 10?

Answer:

=> **NO**, then it would be best to take Biostat 611-612 (Statistical Reasoning). Please note that some of these mathematical skills are still required for Biostat 611-612, but they are not used with the same frequency or intensity as in Biostat 621-623.

=> **UNSURE**; if you feel hesitant, then Biostat 611-612 may be preferred.

=> **YES**, then Biostat 621-623 (Statistical Methods in Public Health) may be appropriate.

Should I take Biostat 621-623 or Biostat 651-654?

Questions 11 to 15 are intended to assess your current knowledge of calculus and matrix algebra.

11. Graph the function $f(x) = \frac{1}{5\sqrt{2\pi}} e^{-\frac{(x-3)^2}{5}}$

12. Consider the function $\sum_{i=1}^N [y_i - (\beta_0 + \beta_1 x_i)]^2$. Find the values of β_0 and β_1 in terms of the y 's and the x 's that minimize the function. Do this by setting first derivatives equal to 0.

13. Find $\int_0^{\infty} \lambda e^{-\lambda t} dt$.

14. Show $\sum_{i=1}^N (x_i - \bar{x})^2 = \sum_{i=1}^N x_i^2 - N\bar{x}^2$ where $\bar{x} = \sum_{i=1}^N x_i / N$.

15. If the matrix $A = \begin{pmatrix} 3 & 2 & 6 \\ 9 & 1 & 4 \end{pmatrix}$ and $B = \begin{pmatrix} 6 & 4 \\ 4 & 2 \\ 5 & 1 \end{pmatrix}$, find the product of $A \cdot B$.

Question:

Do you feel comfortable with the majority of the mathematical manipulations required in problems 11- 15?

Answer:

=> **NO**, then it would be best to take Biostat 621-623 (Statistical Methods)

=> **YES**, then Biostat 651-654 (Methods in Biostatistics) may be appropriate.