Name:

Collaborators:

Instructions:

> You must submit your worksheet individually by end-of-class or end-of-day. Your name must exist in your worksheet and the names of your collaborators.

Worksheets are marked mostly on completion, and partially on correctness. It will be marked either pass or fail, there will no detailed feedback on worksheets, and no opportunities for revisions and make-up.

Test for Independence

1. Titanic Class Survival

The contingency table below shows the number of Titanic passengers who survived (Yes) or did not survive (No) in each class (1st, 2nd, 3rd, Crew).

The objective is to determine whether survival status depends on passenger class.

	1st	2nd	3rd	crew
no	123	166	528	679
yes	201	118	181	211

    a. State the null and alternative hypothesis.

    b. Determine the degrees of freedom df.

    c. Let the significance value be $\alpha = 0.05$. What does this mean in context?

2. Apply the χ^2 Test

Continued from Problem (1).

   a. Compute the expected values of each cell of the contingency table. Note that you need to compute the row and column sums first.

   b. Compute the χ^2 test statistic.

   c. Determine the p-value.

   d. Based on your results in Part (c), what is the conclusion?

References

1.   Diez DM, Barr CD, Çetinkaya-Rundel M (2012) OpenIntro statistics, OpenIntro.