



MITx: 6.041x Introduction to Probability - The Science of Uncertainty



Bookmarks

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Bookmark

Problem 4: Airline overbooking

(3/3 points)


For any given flight, an airline tries to sell as many tickets as possible. Suppose that on average, **10%** of ticket holders fail to show up, all independent of one another. Knowing this, an airline will sell more tickets than there are seats available (i.e., overbook the flight) and hope that there is a sufficient number of ticket holders who do not show up to compensate for its overbooking. Using the Central Limit Theorem, determine n , the maximum number of tickets an airline should sell on a flight with **300** seats so that it can be approximately **99%** confident that all ticket holders who do show up will be able to board the plane. Use the de Moivre-Laplace $1/2$ -correction in your calculations. *Hint:* You may have to solve numerically a quadratic equation.

*You have used 1 of 2 submissions*


- ▶ Unit 6: Further topics on random variables
- ▶ Unit 7: Bayesian inference
- ▶ Exam 2
- ▼ **Unit 8: Limit theorems and classical statistics**

Unit overview


Lec. 18: Inequalities, convergence, and the Weak Law of Large Numbers

Exercises 18 due Apr 27, 2016
at 23:59 UTC 

Lec. 19: The Central Limit Theorem (CLT)

Exercises 19 due Apr 27, 2016
at 23:59 UTC 

Lec. 20: An introduction to classical statistics

Exercises 20 due Apr 27, 2016
at 23:59 UTC 


DISCUSSION

Click "Show Discussion" below to see discussions on this problem.

Solved problems

Additional theoretical
material

Problem Set 8

Problem Set 8 due Apr 27, 2016
at 23:59 UTC 

Unit summary

- ▶ Unit 9: Bernoulli and
Poisson processes

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