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# An Introduction to Statistics With Python

– Errata –

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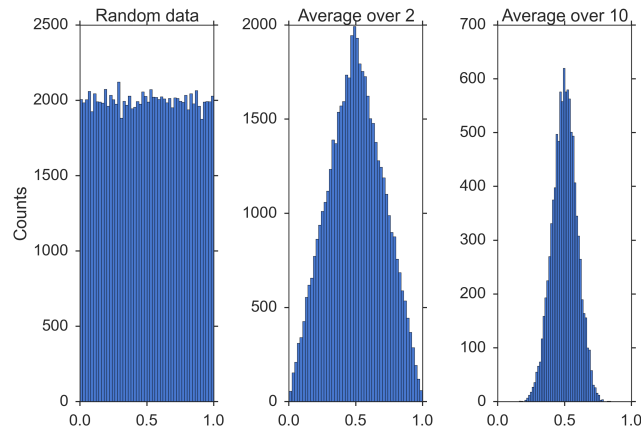
Springer

- On p. 78, **Eq. 5.4** should be  
For discrete distributions, the integral over  $x$  is replaced by the sum over all possible values:

$$E[X] = \sum_i x_i P_i. \quad (0.1)$$

where  $x_i$  represents all possible values that the measured variable can have.

- On p. 108, the wrong figure has been inserted. **Fig. 6.11** should be



**Fig. 0.1** Demonstration of the Central Limit Theorem for a uniform distribution: Left) Histogram of uniformly distributed random data between 0 and 1. Center) Histogram of average over two data points.) Right) Histogram of average over 10 data points.

- On p. 155, the **Summary: Selecting the Right Test for Comparing Groups** should read

No. of Groups Compared	Independent Samples	Paired Samples
<b>Groups of Nominal Data</b>		
2 or more	Fisher's exact test or Chi-Square test	McNemar's test
<b>Groups of Ordinal Data</b>		
2	Mann-Whitney U test	Wilcoxon signed rank test
3 or more	Kruskal-Wallis test	Friedman test
<b>Groups of Continuous Data</b>		
1	one-sample t-test or Wilcoxon signed rank sum test	—
2	Student's t-test or Mann-Whitney test	Paired t-test or Wilcoxon signed-rank sum test
3 or more	ANOVA or Kruskal-Wallis test	Repeated Measures ANOVA or Friedman test

**Table 0.1** Typical tests for statistical problems, for nominal and ordinal data. Note that the tests for comparing one group to a fixed value are the same as comparing two groups with paired samples.

### Hypothetical Examples

- 1 group, nominal    Average calory intake. E.g. "Do our children eat more than they should?"
- 1 group, ordinal    Sequence of giant-planets. E.g. "In our solar system, are giant planets further out than average in the sequence of planets?"
- 2 groups, nominal    male/female, blond-hair/black-hair. E.g. "Are females more blond than males?"
- 2 groups, nominal, paired    2 labs, analysis of blood samples. E.g. "Does the blood analysis from Lab1 indicate more infections than the analysis from Lab2?"
- 2 groups, ordinal    Jamaican/American, ranking 100m sprint. E.g. "Are Jamaican sprinters more successful than American sprinters?"
- 2 groups, ordinal, paired    sprinters, before/after diet. E.g. "Does a chocolate diet make sprinters more successful?"
- 3 groups, ordinal    single/married/divorces, ranking 100m sprint. E.g. "Does the marital status have an effect on the success of sprinters?"
- 3 groups, ordinal, paired    sprinters, before/after diet. E.g. "Does a rice diet make Chinese sprinters more successful?"
- 2 groups, continuous    male/female, IQ. E.g. "Are women more intelligent than men?"
- 2 groups, continuous, paired    male/female, looking at diamonds. E.g. "Does looking at sports cars raise the male heart-beat more than the female?"
- 3 groups, continuous    Tyrolians, Viennese, Styrians; IQ. E.g. "Are Tyrolians smarter than people from other Austrian federal states?"
- 3 groups, continuous, paired    Tyrolians, Viennese, Styrians; looking at mountains. E.g. "Does looking at mountains raise the heartbeat of Tyrolians more than those of other people?"

