816 Index

Ethics, 714–719	Financial support, ethics of, 717	Goodness-of-fit test, 564–577. See also
of analysis, 716-717	Finite population correction, 292	Chi-square distribution
conflicts of interest, 717	Fisher exact test, 583	definition, 566
of data collection, 714-716	Five-number summary, 118-120	expected frequencies, 567-573
enforcing, 718-719	Flight data problem, 641-642, 651-652	Gosset, William, 344
nonsignificant results, 717	Flight departure delay problem, 635, 658	Grade point average problem, 88
reporting and, 717	Flight planning problem, 130	Graph(s), 8, 60-70
sampling bias, 715-716	Fluoride, 469	bar, 64
Event(s)	Flynn effect, 693	boxplot, 118-120
certain, 140	Football kicker study, 546	deceptive, 67–69
complementary, 140-141, 152	Footprint evidence, 495, 496–497,	dotplot, 63
compound, 149	500–505, 506–508, 509, 518–520,	enlightening, 60–67
definition, 135	521–522, 523, 525, 532, 533, 536,	frequency polygon, 65–67
dependent, 157–158	543-544	histogram, 45, 54–58, 60, 142,
disjoint (mutually exclusive), 151–152	Forensics study, 169	198–200, 297, 298, 299
	Formal addition rule, 151–152	
impossible, 140		interaction, 616
independent, 157–158	Formal multiplication rule, 157	misleading, 4, 69
simple, 135	Fractiles, 114	modified boxplot, 121–122
unlikely, 141–142	Fraction, percentage conversion, 11	nonzero axis, 67–68, 69
unusual, 141–142	Frequency, 45	normal quantile plot, 57
Exacta bet problem, 177–178	expected, 567–573, 579–582	ogive, 67
Excel. See Software/calculator results	relative, 47–48	Pareto chart, 64-65
Exclusive or, 149, 156	Frequency distribution, 44–54	pictograph, 68–69
Expanded stemplots, 73	classes, 44-45	pie chart, 65
Expected frequency, 567-573, 579-582	construction, 45–47	power of, 61
Expected value, 201–202, 204–205	cumulative, 48, 67	probability histogram, 142, 198–200
Experiment, 23–24	definition, 44	relative frequency histogram, 55
blinding, 29	mean from, 86-87	relative frequency polygon, 66-67
block, 29-30	relative, 47-48	residual plots, 525-526
completely randomized, 29, 30, 607	to understand data, 48-50	scatterplot, 61-62, 497, 521
confounding, 29	Frequency polygon, 65-67	stemplot, 63, 73
definition, 23	Frequency table. See Frequency distribution	time-series, 62
double-blind, 29	F test statistic	tree diagram, 163
matched pairs, 30, 31	effect of a mean on, 605-607	Venn diagram, 151–152
randomization, 28	P-value and, 604	Graunt, John, 5
randomized block, 29–30	Fundamental counting rule, 176, 177	Group testing, 176
replication, 28–29	Fuzzy central limit theorem, 289	Growth chart study, 47
rigorously controlled, 31, 607	ruzzy central mint theorem, 207	Guess, educated, 136
sample size, 29	G	Guess, educated, 150
	Gallup poll, 8	Н
sampling errors, 31		Handedness, 405
sampling strategies, 23–28	Galton, Francis, 517, 540	
types, 23–24	Gambling problems, 142, 162, 204–205	Happiness problem, 64–65
variables, 29	Gaps, 49–50, 62	Harmonic mean, 95
Experimental design, 28–31, 468, 607	Gender choice, 383–384	Hawthorne effect, 26
power of a test and, 395	Gender problems	Heart defibrillators, 717
Experimental units (subjects), 23	birth probabilities, 134, 138, 149, 195,	Height problems, 114, 243, 259–262,
Experimenter effect, 26	198, 201–203, 204, 224–225	263–264, 425–428, 454, 469–472,
Explained/unexplained deviation, 533-535	blood pressure, 671	495, 496–497, 500–505, 506–508,
Explanatory (predictor, independent)	income, 64	509, 518–520, 521–522, 523, 525,
variable, 517, 540, 545	medical tests, 639	532, 533, 536, 541-544, 545, 546
Extrapolation, 520	Gender selection problems, 161, 406	Highway speeds problem, 347–348
Extrasensory perception, 160, 403	MicroSort method, 161, 195	Hip protector study, 584-585
	sex prediction guesses, 391	Histogram(s), 45, 54-58, 142
F	XSORT method, 161, 195, 204, 214,	assessing normality with, 297, 298, 29
Factorial rule, 176, 177	224-225, 383, 384, 386, 394-395,	back-to-back relative frequency, 60
Factorial symbol (!), 176, 212	639, 642-643	common distribution shapes, 56-57
False negative/positive, 133	Genetics problems, 134, 195, 198, 382,	definition, 54
Falsified data, 716	639, 642	probability, 198-200
F distribution, 477–481, 600–601	Geometric distribution, 222	relative frequency, 55
Federalist Papers, 46	Geometric mean, 95	Homogeneity, chi-square test of, 583
Fertilizer problem, 468	Ghostwriting, 717	Horse racing problem, 177–178