Study Guide for Final Exam, Math 125

(The final exam will be on Friday, May 20, and covers material from Chapters 3, 5, 10, 12–15, 18, 21, 23, 26, and 28.) Math 125 Kovitz Spring 2022

• The Histogram.

Chapters 3.1 to 3.4, pages 31 to 44: example 1 on page 40; boxes on pages 32, 37, and 40; page 38, problem 1; pages 50 and 52, problems 1, 2, and 5; summary on page 56: points 1 and 2.

• The Normal Approximation for Data.

Chapters 5.1 to 5.3, pages 78 to 87: example 1 on page 80, example 5 on pages 83–84, example 9 on page 87; box on page 79; page 82, problems 1 (a) and 2 (a); page 84, problem 1 (a); page 88, problem 1(c); page 94, problems 3 and 4; summary on page 96: points 2 and 4.

• The Regression Method.

Chapters 10.1 and 10.3, pages 158 to 161 and 165 to 166: both boxes on page 160; example 1 on page 165; page 167, problems 1(a), (b), and (c); page 176 and 177, problem 2 (b), 3, 4 (a) and 4(b); page 201, problem 12; page 568, problem 10; summary on page 178: points 1 and 3.

• The Regression Fallacy.

Chapters 10.4 and 10.5, pages 169 to 175: example 3 on page 175; box on page 169; page 175, problems 1 and 2; pages 176–177, problem 4; summary on page 179, point 4.

• The Regression Line.

Chapter 12.1, pages 202 to top of page 206: example 1 on pages 205 to 206; box on page 204; page 213, problems 1 and 2; summary on page 216: points 1, 2, and 4.

• What Are the Chances?

Chapter 13.1, pages 221 to 225; boxes on page 222, 223 (both), and 225; technical note (i) on page 227; page 226, problems 2 and 3.

• The Multiplication Rule.

Chapter 13.3, page 229: example 6; page 569, problems 15 (c) and 15 (d).

• Independence.

Chapter 13.4, pages 230 to 232: examples 7 to 10; boxes on pages 230, 231, and 232; page 235, problems 8 and 9; summary on page 236, points 2 through 9.

• More About Chance: The Addition Rule.

Chapters 14.2 and 14.3, pages 241 to 246: examples 3 through 6; both boxes on page 241 and the box on page 242; technical notes on pages 245 and 246; page 243, problems 4 and 5; pages 246 and 247, problems 1, and 3 (a) through (c); pages 252 and 253, problems 3 and 6 page 262, problem 9 (d); summary on page 254, point 2.

• The Paradox of the Chevalier de Méré.

Chapter 14.4, box on page 250; page 250, problems 3 and 4 (a); page 253, problems 7 and 8; summary on page 254, point 3.

• The Binomial Formula.

Chapter 15.2, pages 259 to 261: example 1; box on page 259; page 261, problems 1 and 2; page 268, problem 20; summary on page 268, point 2.

• The Normal Approximation for Probability Histograms.

Chapter 18.4, pages 317 and 318: example 1 (a); box on page 326; page 319, problem 2; pages 327 and 328, problems 1, 4, and 8; summary on page 330, points 3, 4, and 5.

• The Expected Value and Standard Error (for the sample percentage).

Chapter 20.2, pages 359 and 360: especially the bottom two bullets on page 360; box on page 359 and top box on page 360; technical note on page 362; page 361, problem 2; page 371, problem 1.

• Using the Normal Curve.

Chapter 20.3, pages 362 to 365: examples 1 and 2; bottom bullet on page 365; summary on page 373, point 3.

• The Accuracy of Percentages: Introduction.

Chapter 21.1, pages 375 to 379: expecially the top box on page 378 and example 1; page 379, problems 2 to 5; page 386, problem 4 (a).

• Confidence Intervals.

Chapter 21.2, pages 381 and 382: example 2; middle bullet on page 381; page 387, problems 5 (a) to (d), 6 (a) and (b); page 392, problem 5; page 435, problem 27; summary on page 394, points 1, 3, and 4.

• The Accuracy of Averages: Introduction.

Chapter 23.1, pages 409 to 412: example 1 and example 2 (a), also technical note (ii) on page 415; boxes on page 410 and top of page 412; page 413, problems 4 (a) and 5 (a); page 423, problems 1 and 3; page 571, problem 25.

• The Sample Average (Confidence Intervals for Averages).

Chapter 23.2, pages 415 to 418 top: example 3; page 421, problem 6; pages 415 and 417, all bullets; box on page 416; page 421, problem 6; pages 426 and 427, problems 3, 8, and 10.

• Which SE?

Chapter 23.3, pages 422 and 423; page 423, problems 1 and 4 (a); summary on page 437, points 2, 4, 5, and 6.

• The Null and the Alternative

Chapter 26.2, pages 477 and 478; box on page 477; page 478, problems 1 and 2; page 495, problem 1 (b).

• Test Statistics and Significance Levels.

Chapter 26.3, pages 478 to 481; all boxes on pages 479 to 481; page 481, problems 1 and 3; page 495, problem 1 (a).

• Making a Test of Significance.

Chapter 26.4, page 482: first 4 bullets; page 483, problems 2 and 3.

• Zero-one Boxes.

Chapter 26.5, pages 483 to 485; page 487, problems 7 and 8; page 518, problem 1; ESP example in text on page 560; summary on page 500, points 1 to 5.

• The Chi-Square Test.

Chapter 28.1 and 28.2, pages 523 to 531: example 1; pages 531 and 532, problems 1-4 and 7; page 542, problem 7; summary on page 544, points 1 to 4.

Sample Final Exam for May 2022: all.

Review Problems for Final: 1, 3, 8a, 14a, 15a, 22–25, 29, 30, 34–36.	
Test 1:	problems 1, $3,4(b)$ and 6 (a).
From Practice for Test 1:	problems 1, 3, 4, and 6 (a).
Test 2:	problems 3, 4, 5, 6, 7, and 10.
From Practice for Test 2:	problems 4, 5 (a)ii, 6, 7, 9 (a), (b) and (e), 10 (b), 11–13, 14 (b), 15 (a), 16, 17, 19–22, 23, 24, 26, 28.
Test 3:	problems $2, 4, 5$ and 7 .
From Practice for Test 3:	problems $2, 5, and 7$.
Quiz 2: (given on March 24)	problems 1 and 2.
Practice for Quiz 2:	all.
Quiz 2a: (given on March 29)	all.
Practice for Quiz 2a:	all.
Practice for Quiz 3:	problem 1.
Quiz 5: (given on May 5)	all.
Practice for Quiz 5:	all.

From Homework 1: problems 1, 3, and 5. From Homework 2: problems 2 (a), 3 (a), and 9 (c). From Homework 3: problems 6, 9, and 10. From Homework 4: problems 2 (a) and (b), 7, and 10 (a). From Homework 5: problems 3 (g) and (h), and 6-10. From Homework 6: problems 1, 13, and 14 (which is problem 1 on page 327). From Homework 7: problems 7, 8, 9, 11, and 14. From Homework 8: problems 3, 7 to 10, 12 to 15, and 17.