**MATH 4720 Final Topics Sheet – Spring 2017**

**Exam 1: (4 questions)**

7.5 Normal Approximation to the binomial

8.2 ~~Bias and Mean Square Error (#3)~~

8.3 Common Unbiased Point Estimators

8.4 ~~Goodness of a Point Estimator (2σ bound) (#4)~~

8.5 ~~Confidence Intervals and Pivotal Quantities (#6)~~

8.6 ~~Large-Sample Confidence Intervals (#7)~~

8.7 ~~Selecting the Sample Size (#1)~~

8.8 ~~Small Sample Confidence Intervals (#8)~~

8.9 ~~Confidence Intervals for (#9)~~

9.2 ~~Relative Efficiency (#10)~~

9.3 ~~Consistency (#5)~~

9.4 ~~Sufficiency (#2)~~

~~1, 2, 3, 4, 5, 6, 7, 8, 9, 10~~

**Exam 2: (4 questions)**

9.5 ~~Rao-Blackwell Theorem (#6)~~

9.6 ~~Method of Moments (#2)~~

9.7 ~~Method of Maximum Likelihood (#3)~~

10.2 ~~Elements of a Statistical Test (Power and Type I error) (#4)~~

10.3 ~~Large-Sample Tests (#5a)~~

10.4 ~~Calculating Type II Error and Finding Sample Sizes for Z tests (#8)~~

10.5 ~~Relationships between Confidence Intervals and Hypothesis Tests (#7)~~

10.6 ~~Attained Significance or P-values (#5b)~~

10.8 ~~Small-Sample Hypothesis Testing for the Mean (#7)~~

10.9 ~~Testing for variances (#1)~~

10.10 Neyman-Pearson Lemma (#9)

1, 2, 3, 4, 5, 6, 7, 8, 9

**Exam 3: (3 questions)**

10.11 ~~Likelihood Ratio Tests (#3)~~

11.3 ~~Method of Least Squares (#4a)~~

11.4 ~~Properties of Least Squares Estimators (#1)~~

11.5 ~~Inferences Concerning (#4b)~~

11.6 Inferences Concerning Linear Functions of

11.7 ~~Predicting a Future Observation (#4c)~~

11.8 ~~Correlation (#2)~~

14.3 ~~Goodness-of-Fit test (#6)~~

14.4 ~~Chi-Square Test for Independence (#5)~~

16.2 ~~Bayesian Prior, Posteriors, and Estimators (#7)~~

1, 2, 3, 4, 5, 6, 7