# MATH 204: PRINCIPLES OF STATISTICS 2

## WINTER 2008

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| Instructor : | David A. Stephens (Burnside 1235) |
| Email : | d.stephens@math.mcgill.ca |
| Office Hours : | Monday 15:00-17:00 |
| Tutorial : | TBA |
| Teaching Assistant : | Geva Maimon |
| Textbook : | *Statistics* (10th Edition) by J. T. McClave and T. Sincich. |
| Web Site : | http://www.math.mcgill.ca/∼dstephens/204/ |

## TARGET SYLLABUS

1 **ANALYSIS OF VARIANCE: COMPARING MORE THAN TWO MEANS**

- 1.1 Designed Experiments
- 1.2 Randomized Designs
- 1.3 Multiple Comparison of Means
- 1.4 Randomized Block Designs
- 1.5 Factorial Experiments

2 **LINEAR REGRESSION MODELLING**

- 2.1 Simple Linear Regression
  - 2.1.1 Probability Models
  - 2.1.2 Least-Squares Fitting
  - 2.1.3 Model Assumptions
  - 2.1.4 Parameter Estimation and Testing
  - 2.1.5 The Correlation Coefficient
  - 2.1.6 Prediction
  - 2.1.7 Polynomial Regression
- 2.2 Multiple Linear Regression
  - 2.2.1 Multiple Regression Models
  - 2.2.2 Model Building and Checking
  - 2.2.3 Stepwise Model Selection
  - 2.2.4 Residual Analysis
  - 2.2.5 Pitfalls of Regression Modelling

3 **NON-PARAMETRIC STATISTICS**

- 3.1 Distribution-Free Tests
- 3.2 Single Population Tests
- 3.3 Comparing Two Populations: Independent Samples
- 3.4 Comparing Two Populations: Dependent Samples
- 3.5 Comparing Three or More Populations
- 3.6 Rank Correlation
- 3.7 Simulation-based Testing: Permutation Tests

## EVALUATION

Please note that the method of evaluation for this class will be **on the following basis only**:

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| Coursework Assignments | From Friday 18th January 2008 |
| Mid-Term | Week of 4th February - 11th February 2008<br>Take Home |
| Final | Closed book (with formula sheet) |

Final mark for course†: the larger of

$$15\ \%\ \text{Coursework} + 25\ \%\ \text{Mid-Term} + 60\ \%\ \text{Final}$$

and

$$15\ \%\ \text{Coursework} + 85\ \%\ \text{Final}$$

**NOTES**:

† There will no opportunity for a make-up Mid-Term if this examination is missed, and no make-up work in place of any aspect of the course assessment.

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`http://www.mcgill.ca/integrity/`

**for more information**).

David A. Stephens.
January 4, 2008