Research Design and Statistics for Psychologists

Winter 2002

Course Web Page

New Information

- **NEW** Multiple Comparisons tutorial courtesy of Lisa.
- **NEW** Exam study outline - the same as the one presented in class.
- **NEW** Flow Chart for statistical testing.
- Notes on Repeated Measures ANOVA from the tutorial.
- The current marks including the assignment are here. Check them over! Note the marks for those who wrote the makeup are not incorporated, please contact me to get them.
- Example Final Exam available with **NEW** comments here.
- The assignment marking key, **part1**, **NEW** part2 (part3 available soon?)
- The ANOVA handout for the tutorial held a few weeks ago was updated to correct some errors (error in SStreatment formula and summary table format).
- ANOVA calculations needed for Tuesday March 19th class - print it out (link fixed).
- More Course Notes added.
- The Test 1 key is available here.

**Instructor:** Dan Bosnyak

**email:** 2rr3@claret.psychology.mcmaster.ca

**Office Hours:** Regular office hours are Wednesday 1:30 (Dan Bosnyak) in room 204, and Friday 10:30 in room 205 (TA). Special office hours will be added before the Midterm, before each Assignment and before the Final. If these hours are not suitable for whatever reason, please email us for an appointment.

**Teaching Assistants:** Brett Beston, Lisa Betts, Jessica Phillips-Silver, Jason Tangen

**Online Information**:

Some course notes

**TEST 1 RESULTS** - note that 2 raw marks will be added to these marks

**TEST 1 KEY**

http://www.psychology.mcmaster.ca/2rr3/
Special ANOVA tutorial notes and overheads if you missed it.

ASSIGNMENT 1

- **Part 1** - in pdf format
- **Part 2** - in pdf format (do only the indicated questions - others are practice)
- **Part 2** - in pdf format with practice questions stripped out
- **Part 2** - in HTML format, might take some time to load
- Marking Key part 1

All of the Part 2's contain the same questions, just different print formats so you only need one of them.

**Hints:**

- for the part 2 questions, test hypothesis = null hypothesis
- for 12.3 #1e, use the calculator here.
- for question 1: to calculate the probabilities, the denominator is always the same, that is the number of ways that you can select 20 numbers out of the 70 possible. The numerator for the case when you get all of the numbers is easy to get (how many ways could you get three numbers out of 20, for example). In the case where you don't get all of the numbers but only get say 5 out of 7 is a bit more difficult, but I will provide this hint. When you get 5 out of the 20 numbers, you must have missed two numbers, and therefore you have 2 numbers within the 63 numbers you didn't choose. This plus the basic rule of counting is all you will need to solve this. If you don't end up getting the formula, use the odds that you get from the web to finish the answer and you will have part marks.

**Evaluation:**

<table>
<thead>
<tr>
<th>Evaluation</th>
<th>TEST 1 RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weight</strong></td>
<td><strong>Date</strong></td>
</tr>
<tr>
<td>Midterm Exam</td>
<td>20%* More Information..</td>
</tr>
<tr>
<td>Assignment 1</td>
<td>30%* March 11</td>
</tr>
<tr>
<td>Assignment 2</td>
<td>cancelled never</td>
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<tr>
<td>Final Exam</td>
<td>50%* Scheduled by Registrar</td>
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The Final Exam must be a pass in order for the assignment marks to count, otherwise the breakdown will be 70% final, 30% midterm. Assignments must be submitted when due or a late penalty of 5% per day will be assessed. Assignments over 7 days late will not be accepted. Any excuse for missing a test, examination or assignment must be submitted through the
appropriate (Science or Social Science) Dean of Studies.

* The 15% that was allocated for assignment 2 will be assigned to either assignment 1, the Midterm, or the Final, depending on what is most advantageous to each individual student. All three possibilities will be calculated for each student and the highest final mark chosen.

Text (required) :  Statistical Methods for Psychology, 5th Edition

David C. Howell


A Student Solutions Manual may also be available in the bookstore for this text but is not required.

Additional material may be placed on reserve or on the class web page http://www.psychology.mcmaster.ca/2rr3/

Background Material : Since all students have a basic statistics course as a prerequisite, knowledge of the material in Chapters 1 through 10 is assumed; students are encouraged to review this material on their own. A brief review of the material in chapters 4, 5, and possibly 7 will be provided in class but this review will assume prior knowledge. See this page for a more detailed description of what you should already know.

Topics and Relevant Book Chapter:

<table>
<thead>
<tr>
<th></th>
<th>Basic concepts of probability and hypothesis testing (review).</th>
<th>Ch 4, 5, 7 plus additional material</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>The analysis of categorical data using Chi-square</td>
<td>Ch 6</td>
</tr>
<tr>
<td>3</td>
<td>Experimental Design</td>
<td>Additional Material, Ch 8 may be relevant</td>
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<tr>
<td>4</td>
<td>Simple one-way ANOVA</td>
<td>Ch 11</td>
</tr>
<tr>
<td>5</td>
<td>Multiple comparisons</td>
<td>Ch 12</td>
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<tr>
<td>6</td>
<td>Two-way ANOVA</td>
<td>Ch 13</td>
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<tr>
<td>7</td>
<td>Repeated Measures ANOVA</td>
<td>Ch 14</td>
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