

## **PNB 3XE3 – Inferential Statistics – Fall 2013 – Course Syllabus v.1a**

**NOTE: Please see the PNB-3XE3 AvenueToLearn page for UPDATED syllabus information!**

### Instructor

Dr. Scott Watter

Phone: 905 525 9140 x.23031

Office: Psychology, Room 408

Office Hours: by appointment

### Contact

To contact the instructor, please EMAIL: [stats@cogsci.mcmaster.ca](mailto:stats@cogsci.mcmaster.ca)

- this is *by far* the quickest and most reliable way to contact me! Don't leave voicemail – just email me please. Again, please note the address: [stats@COGSCI.mcmaster.ca](mailto:stats@COGSCI.mcmaster.ca)

ALSO - please send email from your @mcmaster.ca account!!! - gmail, hotmail, yahoo, etc. is often filtered as spam!!! It becomes VERY difficult to keep track of 100+ students via gmail accounts, when many usernames /aliases are ambiguous with respect to your personal identity at McMaster. PLEASE help us, and correspond via your McMaster email address for this class. Emails from non-mcmaster addresses may experience substantial delays in getting a response (if any), depending on how quickly we can figure out who you are.

If you need to contact me about non-course-related things, or about personal matters, please email me at [watter@mcmaster.ca](mailto:watter@mcmaster.ca)

### Course Assistance

Please post any course-related questions to Avenue (click on PNB-3XE3 and go to the Discussion tab). Rather than emailing the professor or one of the individual TAs you should post your question on Avenue (unless it is of a personal nature). Others will likely have the same question and will benefit from seeing the answer. Your TAs will be monitoring the Avenue discussion board several times daily and you will get a fast response this way.

### Teaching Assistants

Michel Belyk

Jordan Lass

Juliana Loureiro-Kent

Marcus Morrissey

Stefanie Northover

Cara Tigie

([belykm@mcmaster.ca](mailto:belykm@mcmaster.ca))

([lassjw@mcmaster.ca](mailto:lassjw@mcmaster.ca))

([loureij@mcmaster.ca](mailto:loureij@mcmaster.ca))

([morrismn@mcmaster.ca](mailto:morrismn@mcmaster.ca))

([northosb@mcmaster.ca](mailto:northosb@mcmaster.ca))

([tiguecc@mcmaster.ca](mailto:tiguecc@mcmaster.ca))

## Lectures & Lab/Tutorial Sections

Lectures: Monday, Wednesday & Thursday, 1:30-2:20pm, ITB-AB102

Labs/Tutorials:

T01	Th	11:30a-1:20p	KTH/B123
T02	Mo	11:30a-1:20p	KTH/B123
T03	We	11:30a-1:20p	KTH/B123
T04	Mo	3:30p-5:20p	KTH/B123
T05	Tu	8:30a-10:20a	KTH/B123

Attendance at lab/tutorial sessions is MANDATORY – we will take attendance, and you will get credit for attending lab/tutorial sessions and completing and submitting weekly lab work DURING your tutorial/lab session. Lab/tutorial sessions will be TA-directed sessions involving hands-on problem solving and data analysis, both written (by hand) and computer-based (Excel and SPSS). See the weekly schedule below for details. You must attend YOUR OWN SCHEDULED lab session. If you need/want to change, please contact the instructor for permission first.

## Avenue to Learn

In this course we will be using McMaster's online course content system, Avenue to Learn. Students should be aware that, when they access the electronic components of this course, private information such as first and last names, user names for the McMaster e-mail accounts, and program affiliation may become apparent to all other students in the same course. The available information is dependent on the technology used. Continuation in this course will be deemed consent to this disclosure. If you have any questions or concerns about such disclosure please discuss this with the course instructor.

The course website is available to registered students by logging into Avenue:

<http://avenue.mcmaster.ca>

You will need to learn how to use Avenue to access the course content, announcements, and discussions. Detailed instructions for logging in and using Avenue can be found on the website above.

Slides from the lectures will be available on Avenue as PDF files, **AFTER** the lectures.

## Course Objectives

Students should gain a strong foundation in inferential statistics, including t-tests, Analysis of Variance, Chi-Square and Non-Parametric methods, assessing Power and choosing appropriate analysis methods. Students will understand the theory behind these methods, and be able to apply these methods correctly and appropriately to analyze data, and be able to interpret results.

Both the lecture and tutorial/lab components of the course are mandatory. Lab work is to be completed and submitted within weekly scheduled lab/tutorial time for your tutorial section.

## Materials and Fees

### Course textbook:

Fundamental Statistics for the Behavioral Sciences, by David C. Howell, published by Wadsworth. Either the new 8<sup>th</sup> edition or previous 7<sup>th</sup> edition is fine (you probably already own ed. 7e). Some supplementary readings may be added as the term progresses, and will be provided via Avenue. We will also use Dr David Howell's (the textbook author) very useful website for the book, which includes problem solutions, student guides, and lots of other useful material to help you in the course:

<http://www.uvm.edu/~dhowell/fundamentals8/>

The 7<sup>th</sup> ed. site is mostly the same: <http://www.uvm.edu/~dhowell/fundamentals7/>

### Software:

We will use Excel and SPSS, both of which are available in all of the computer labs. Assignments will be completed and submitted during the lab times so students do not need to purchase their own copy of the software.

### MacID:

You will need to activate your MacID if you have not already done so, to work on the computers in the labs, and to receive course emails. See <http://www.mcmaster.ca/uts> for information on obtaining and activating your MacID.

### AvenueToLearn:

You should check the PNB-3XE3 discussion group on Avenue on a daily basis for questions and answers, and also check the Course Announcements section.

## Assessment

There will be 3 exams: two midterm exams during class time, and a final exam in the final exam period. Exams may be a mixture of written and multiple choice questions, including questions where you need to work out mathematical statistical problems by hand, and then report (written) or choose the best alternative (multiple choice) based on your calculations. You may bring only a **McMaster approved calculator, pencils and erasers** suitable for multiple-choice scan sheets, and your **McMaster student ID card** to the exams. Sheets with formulae (if required) will be supplied for you. The grading scheme is described below. The instructor reserves the right to alter the evaluation scheme if necessary.

- Midterm 1, Midterm 2, and Final-Part 1 (aka "Midterm 3"): best 2 of 3, 25% each = 50%
- Final-Part 2 (all course content): 40%
- Lab/Tutorial Work: best 8 out of 9 labs, 1.25% each = 10%

### Lab/Tutorial Work:

Attendance at labs/tutorials is mandatory, and attendance will be taken. Each lab will involve some combination of written and/or computer based problem solving, guided by TAs. Work must be completed and submitted during the corresponding lab time to earn credit for each session. Absence or submissions outside of lab time will earn grades of zero for that lab. There will be no make-up assignments. Please let us know ASAP if you can't make your lab session. You must attend YOUR OWN scheduled lab section! – prior permission required to change! – not enough TA support otherwise.

## Changes in course requirements

The university reserves the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check their McMaster email and course websites weekly during the term and to note any changes.

The professor reserves the right to change any and all course requirements if the need should arise. Any change in the course requirements will be posted on the webpage and emailed to the class, and the details will be announced in class. Any concerns about announced changes should be addressed with the professor as soon as the changes are announced.

## Academic Integrity Policy

You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity. Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: “Grade of F assigned for academic dishonesty”), and/or suspension or expulsion from the university. It is your responsibility to understand what constitutes academic dishonesty. For information on the various types of academic dishonesty please refer to the Academic Integrity Policy, located at <http://www.mcmaster.ca/academicintegrity>

The following illustrates only three forms of academic dishonesty:

1. Plagiarism, e.g. the submission of work that is not one’s own or for which other credit has been obtained.
2. Improper collaboration in group work.
3. Copying or using unauthorized aids in tests and examinations.

## Missed Assessment

All excuses for missed exams, assignments, etc. must be submitted through the office of the Associate Dean of your faculty. It is then also **your** responsibility to speak with your professor as soon as possible. Note that this course does NOT typically offer make-up exams or the possibility for late submission of assignments, as allowance for missed work is built in to the assessment structure.

## Schedule – Lectures, Topics, Labs & Exams

### Week 0

LECTURE Sept 5: Introduction; Course Overview, Syllabus & Evaluation

LAB: no lab this week - no tutorials scheduled

READINGS: Review your second year stats!!!

### Week 1

LECTURES Sept 9, 11, 12: Review; T-tests - one sample

LAB: no lab this week - no tutorials scheduled

READINGS: Ch 12 & Ch 13

### Week 2

LECTURES Sept 16, 18, 19: T-tests: Two dependent samples

LAB: yes! – tutorial sections are ON this week

READINGS: Ch 13 & Ch 14

### Week 3

LECTURES Sept 23, 25, 26: T-tests: two independent samples

LAB: yes! – tutorial sections are ON this week

READINGS: Ch 14 & Ch 15

### Week 4

LECTURES Sept 30, Oct 2, 3: Power

LAB: yes! – tutorial sections are ON this week

READINGS: Ch 15

### Week 5

**\*\*\* MIDTERM ONE: MONDAY, OCTOBER 7 \*\*\***

**- Location of midterms To Be Announced – see Avenue for updates!**

LECTURES Oct 9, 10: Analysis of Variance – One Way ANOVA

LAB: no lab this week - no tutorials scheduled

READINGS: Ch 16

### Week 6

THANKSGIVING HOLIDAY (Monday Oct 14)

- T02 & T04 tutorials (missed Monday) attend T01, T03 or T05 lab section this week

LECTURES Oct 16, 17: One Way ANOVA, a priori and post hoc comparisons

LAB: yes! – tutorial sections are ON this week

READINGS: Ch 16

### Week 7

LECTURES Oct 21, 23, 24: Factorial ANOVA

LAB: yes! – tutorial sections are ON this week

READINGS: Ch 17

Week 8

FALL BREAK (Thurs 31 Oct – Sat 2 Nov)

- T01 tutorial (missed Thursday) attend T02, T03, T04 or T05 lab section this week

LECTURES Oct 28, 30: Factorial ANOVA

LAB: yes! – tutorial sections are ON this week

READINGS: Ch 17 & 18

Week 9

LECTURES Nov 4, 6, 7: Repeated Measures ANOVA

LAB: yes! – tutorial sections are ON this week

READINGS: Ch 18

Week 10

**\*\*\* MIDTERM TWO: MONDAY, NOVEMBER 11 \*\*\***

**- Location of midterms To Be Announced – see Avenue for updates!**

LECTURE Nov 13: Chi-Square Analysis

(NO lecture Thurs 14<sup>th</sup> Nov – Psychonomic Society Conference)

LAB: no lab this week - no tutorials scheduled

READINGS: Ch 19

Week 11

LECTURES Nov 18, 20, 21: Chi-Square (continued); Non-Parametric Statistics

LAB: yes! – tutorial sections are ON this week

READINGS: Ch 19 & 20

Week 12

LECTURES Nov 25, 27, 28: Non-Parametric Statistics (continued)

LAB: yes! – tutorial sections are ON this week

READINGS: Ch 20

Week 13

LECTURES Dec 2, 4: Review

LAB: no lab this week – no tutorials scheduled

READINGS: no new readings this week

Final Exam scheduled by the Registrar in the final exam period – to be scheduled.