CGSC *5101 – HCIN 5400:* Experimental Methods and Statistics
INSTITUTE OF COGNITIVE SCIENCE, CARLETON UNIVERSITY
Fall 2021

Class Information

Lecture dates:	Tuesday, Sept 14 – December 9, 2021
Lecture time:	2:35 am – 5:25pm
Lecture location:	virtual (Zoom)

Instructor Information

Instructor:	Kasia (Katarzyna) Muldner
Office:	virtual (Zoom)
E-mail:	kasia.muldner@carleton.ca, best way to reach me
: Office hours:	TBA

Course Description

This is course is an introduction to the design of experiments and the statistics needed to interpret data from them. The focus of the course will be on developing a conceptual understanding of the various statistical methods and their applications for answering research questions about cognitive science and human-computer-interaction phenomena, and in particular on the presentation and interpretation of results. This course is intended for students who have not taken advanced undergraduate or graduate statistics courses.

The classes will consist of short lectures interspersed with collaborative hands-on activities and analyses using the SPSS statistical analysis package. In summary, the objective of the course is to understand how to (1) analyze data from experimental studies, (2) interpret the results, and (3) present the results in the established APA format.

Materials (Textbook, software)

1. Text book (required): Field, A. (2017). Discovering Statistics Using SPSS, North American Edition (5th Edition). The book (paper or ebook) is available through several online vendors like sagepub.com or amazon.com

This is a useful reference book to have, but if you prefer to "rent" it rather than own, you can do so through various vendors. The third edition is also acceptable.

2**. Software required:** Our in-class and homework activities require the use of SPSS – freely available under the Carleton license.

3. Recommended Reference: Publication Manual of the American Psychological Association [6th Edition]. APA format is expected by many journals and conference proceedings as well as for graduate theses. There are many online sources for APA, e.g., http://owl.english.purdue.edu/owl/section/2/10

Course Web Page (brightspace)

The course website is located at https://carleton.ca/brightspace/ On this site you will find the course outline, schedule, assignments, sample data sets, and supplementary readings, materials and handouts for the class.

Evaluation

Item	Weight of Grade	Due date
Assignment 1	Pass or Fail, 10	Friday, Oct. 1, 11:59pm
Assignment 2	15	Wednesday, Oct 20 11:59pm
Assignment 3	15	Wednesday, Nov 10, 11:59pm
Assignment 4	18	Wednesday, Nov 24, 11:59pm
Assignment 5	19	Wednesday, Dec 8, 11:59pm
Final project	23	Dec 23, 11:59pm

The class involves a series of written assignments. Each assignment will include a data set and questions to be answered about the data set. You will be required to hand in a write up in APA style, resembling the type you would see in a journal paper. Assignments must be submitted through brightspace. Students are encouraged to work in groups to analyze the data. However, each student must hand in a separate assignment that **is written in their own words**, and includes **their own tables or figures**. The final project will be a slightly more extensive version of an assignment. Details will be provided in class.

The first assignment will be graded using a rubric similar to the other assignments, but will be given a pass or fail grade. Any reasonable attempt to do the assignment will result in a pass. All assignments and the final project must be submitted on time and late submissions will not be graded (resulting in a mark of 0). However, there is a one-time "late pass" that can be used once to submit an assignment up to three days late. This late-pass does not apply to the final project, which must be submitted on time. If you intend to use the pass, you must mail the instructor **before** the due date to let them know.

Attendance is expected in all classes and participation in classroom discussion is strongly encouraged. If you do not attend class, then you are responsible for the material missed (and should not use office hours to replace class time, unless the absence was due to documented illness or bereavement).

Lecture Schedule *

Weeks where an assignment is due are coloured in blue.

Date	Lecture Topic	Readings
Sept. 14	Measurement, descriptives	Chapter 1
Sept. 21	Exploring data, bias in data	Chapter 3 - 5
Sept. 28	Introduction to NHST, correlation	Chapter 2, 7
Oct. 5	Comparing two means: t-tests	Chapter 9
Oct. 12	Comparing several means: ANOVA	Chapter 11
Oct. 19	ANCOVA	Chapter 12
Oct 25	*Reading week, no class*	
Nov 2	Factorial ANOVA	Chapter 13
Nov 9	Repeated measures	Chapter 14
Nov 16	Mixed designs	Chapter 15
Nov 23	Regression	Chapter 8
Nov 30	Special topics - TBA	
Dec 7	Special topics - TBA	

* Note**:** The schedule may shift as the class moves forward.

E-mail Protocol

I will respond to e-mails within 24-48 hours (excluding weekends and holidays). E-mail is best reserved for simple questions - if you have questions that require more than a yes/no type answer, the best forum for answering them is during class or office hours.

Academic Integrity Statement

Plagiarism and cheating at the graduate level are viewed as being particularly serious and the sanctions imposed are accordingly severe. Students are expected to familiarize themselves with and follow the Carleton University Student Academic Integrity Policy (See http://www1.carleton.ca/sasc/advisingcentre/academic-integrity). Plagiarism and cheating – presenting another's ideas, arguments, words or images as your own, using unauthorized material, misrepresentation, fabricating or misrepresenting research data, unauthorized co-operation or collaboration or completing work for another student – weaken the quality of the graduate degree. Academic dishonesty in any form will not be tolerated. Students who infringe the Policy may be subject to one of several penalties including: expulsion; suspension from all studies at Carleton; suspension from full-time studies; a refusal of permission to continue or to register in a specific degree program; academic probation; or a grade of Failure in the course.

For the assignments, you are welcome to work collaboratively to discuss techniques and interpret the results. However, each class member must hand in a separate assignment that is written in his or her own words – this includes their own tables and figures (not ones copied from a colleague's output)**.** The final project is an independent project, based on a student's own data or on a dataset chosen in collaboration with the instructor.

Regulations and Information Common to all Cognitive Science Courses

GRADING SYSTEM

Letter grades assigned in this course will have the following percentage equivalents:

A+ = 90-100	B = 73-76	C - = 60-62
A = 85-89	B - = 70-72	D+ = 57-59
A - = 80-84	C+ = 67-69	D = 53-56
B+ = 77-79	C = 63-66	D - = 50-52

F Failure. No academic credit

ABS Absent from the final examination

DEF Official deferral (see "Petitions to Defer")

FND "Failed, no Deferral" – assigned when the student is absent from the final exam and has failed the course on the basis of inadequate term work as specified in the course outline.

Standing in a course is determined by the course instructor, subject to the approval of the Chair and Faculty Dean.

IMPORTANT INFORMATION

- Students must always retain a copy of all work that is submitted.
- All final grades are subject to the Dean's approval.
- For us to respond to your emails, we need to see your full name, CU ID, and the email must be written from your valid CARLETON address. Therefore, in order to respond to your inquiries, please send all email from your Carleton CMail account. If you do not have or have yet to activate this account, you may wish to do so by visiting https://carleton.ca/its/.

For a list of dates and deadlines, including holidays and exam dates, please visit:
https://carleton.ca/registrar/registration/dates/academic-dates/

REQUESTS FOR ACADEMIC ACCOMMODATION

You may need special arrangements to meet your academic obligations during the term. For an accommodation request the processes are as follows:

Pregnancy obligation: Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic- Accommodation.pdf

Religious obligation: Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic- Accommodation.pdf

Academic Accommodations for Students with Disabilities: If you have a documented disability requiring academic accommodations in this course, please contact the Paul Menton Centre for Students with Disabilities (PMC) at 613-520-6608 or pmc@carleton.ca for a formal evaluation or contact your PMC coordinator to send your instructor your Letter of Accommodation at the beginning of the term. You must also contact the PMC no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with your instructor as soon as possible to ensure accommodation arrangements are made. carleton.ca/pmc

Survivors of Sexual Violence: As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and is survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit: carleton.ca/sexual- violence-support

Accommodation for Student Activities: Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf

For more information on academic accommodation, please contact the departmental administrator or visit: students.carleton.ca/course-outline

COPYRIGHT POLICY

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PETITIONS TO DEFER

Students unable to complete a final term paper or write a final examination because of illness or other circumstances beyond their control or whose performance on an examination has been impaired by such circumstances may apply within five working days to the Registrar's Office for permission to extend a term paper deadline or to write a deferred examination. The request must be fully and specifically supported by a medical certificate or other relevant documentation. Only deferral petitions submitted to the Registrar's Office will be considered.

RESOURCES (613-520-2600)

Department of Cognitive Science (ext. 2522)	2221 DT (Dunton Tower)
Registrar's Office (ext. 3500)	300 Tory
Student Academic and Career Development Services (ext. 7850)	302 Tory
Paul Menton Centre (ext. 6608)	501 University Centre
Writing Tutorial Service (ext. 1125)	4th fl Library
Learning Support Services (ext .1125)	4th fl Library

ACADEMIC ADVISING

During the fall term 2021, please contact undergraduate and graduate advisors by e-mail (Graduate advisor: Uzma Khan: uzma.khan@carleton.ca). Advisors can answer questions concerning:

- Course selection and meeting program requirements
- Your audit and transfer credits
- Gaining access to courses that are closed
- Information concerning prerequisites and preclusions

- Course equivalencies and substitutions
- Information about whether to pursue the (Honours Project Course) or the Thesis stream and CGPA requirements
- Community Practicum Course
- Concentrations
- Exchanges and course selection