

**American University of Beirut  
Faculty of Arts and Sciences  
Department of Psychology**

**PSYC 284: Statistical Analyses in Psychology**

**(3 credits)**

*"I only believe in statistics that I forged myself"*

(Falsely attributed to) W. Churchill

**Instructor: Julien Besle**

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**Office: Jesup Hall 103 E**

**Office hours:** Tuesdays 2:00-3:30 pm and Thursdays 11:00-12:30 am or by appointment.

**Class times:** Tuesday/Thursday 9:30 – 10:45 am

**1) Catalogue course description**

Statistical Analyses in Psychology is the second part of the required research sequence for students majoring in Psychology. It introduces the student to univariate, bivariate and multivariate statistical analyses in psychological research and combines lectures and computer lab sessions.

*Prerequisite: PSYC 282. Annually.*

**2) Course description and learning outcomes**

This course introduces you to basic concepts in statistics and the *R environment and language for statistical computing*. The course aim is to enable you to (1) have an understanding of the principles of statistical theory, (2) be able to critically appraise the use of the most common statistical tests in research publications and (3) conduct and report statistical analyses on your own research data.

**Student learning outcomes:** At the end of this course, students should be able to:

- 1- Enter and clean raw data in *R* (PLO 3c).
- 2- Compute and interpret descriptive statistics (PLOs 3c,d).
- 3- Select the appropriate statistical analysis for different research situations (PLOs 3a,c,e).
- 4- Verify test assumptions, conduct basic data transformations using *R* (PLOs 3c,e).
- 5- Conduct univariate and bivariate statistical analyses using *R* (PLO 3c).
- 6- Correctly interpret statistical tests, confidence intervals and effect sizes (PLOs 2c, 3d,e).
- 7- Report in writing a full statistical analysis using APA style manual (PLO 6b).

**3) Resources Available to Students**

**Core text:** PSYC284 mostly relies on one *required* core text:

Title: *Discovering Statistics Using R (2012)*

Authors: Andy Field, Jeremy Miles, Zoë Field

Publisher: Sage Publications

*Available at the bookstore*

Other online resources:

<https://studysites.uk.sagepub.com/dsur/study/default.htm>

<https://www.discoveringstatistics.com/>

**Statistical software:** For practice and assignments, you will need access to a computer with *R* and *R Studio* installed. This software is freely available online and instructions to install *R* and *R Studio* are available on <http://moodle.aub.edu.lb>. Contact me if you encounter any problem installing *R*. If you don't have your own computer, contact me immediately so we can find computers with *R* installed on campus.

#### 4) Tentative Schedule

Week		Chapter and Topic	Grading
1	Sep 5 <sup>th</sup>	Statistics in the research process (Ch1)	
2	Sept 12 <sup>th</sup>	The R Environment (Ch3)	
3	Sep 19 <sup>th</sup>	Descriptive statistics (Ch1-2)	
4	Sep 26 <sup>th</sup>	Descriptive statistics (Ch1-2)	Assignment 1
5	Oct 3 <sup>rd</sup>	Sampling theory and statistical inference (Ch2)	
6	Oct 10 <sup>th</sup>	Sampling theory and statistical inference (Ch2)	Assignment 2
7	Oct 17 <sup>th</sup>	Comparing two means (Ch9)	
8	Oct 24 <sup>rd</sup>	Comparing two means (Ch9)	<b>Mid-term Exam 1</b> (Oct 28 <sup>th</sup> , 10-12 pm)
9	Oct 31 <sup>st</sup>	Regression and correlation (Ch6-7)	Assignment 3
10	Nov 7 <sup>th</sup>	Regression and correlation (Ch6-7)	
11	Nov 14 <sup>th</sup>	Comparing several means (ANOVA) (Ch10)	<b>Mid-term Exam 2</b> (Nov 18 <sup>th</sup> , 10-12 am)
12	Nov 21 <sup>st</sup>	Factorial ANOVA (Ch11)	Assignment 4
13	Nov 28 <sup>th</sup>	Analysis of covariance (ANCOVA) (Ch12)	
14	Dec 5 <sup>th</sup>	Repeated-measures ANOVA (Ch13)	
15	Dec 12 <sup>th</sup>	Reading week	Assignment 5
	TBA	Final exam	

#### **Tentative content of assignments:**

Assignment 1: Data entry, manipulation and descriptive statistics

Assignment 2: Probability distributions, confidence intervals, power

Assignment 3: T-tests, regression and correlation

Assignment 4: Multiple regression and one-way analysis of variance

Assignment 5: Analysis of variance/covariance

## 5) Grading Criteria

Your final grade in this course will be calculated as follows:

Exam	Type	Weighting
Two mid-term exams held on Saturdays	Multiple choice and open questions + performing and reporting statistical tests using R (open book)	25% × 2 = 50%
Final Exam	Multiple choice and open questions + performing and reporting statistical tests using R (open book)	25%
Five Assignments	5% per assignment	25%

Grading will be criterion-based. The exact criteria for each grade will be provided in due course, as will the content and format of the exams and assignments.

There *may* be additional optional credits for research participation.

## 6) Course Policy

I reserve the right to change the dates and the format of assignments or exams during the course if necessary but will provide advance notice.

During class, **cell phones are not to be seen or heard, or they may be confiscated for an indefinite period.** The use of laptops is not allowed during class. Notes are to be taken by hand. If you wish to leave the class for any reason, you must take permission first.

**Communication:** Do not hesitate to contact me during office hours or by appointment with any question about the course or assignments and to clarify any material that you haven't grasped.

Emails and Moodle are core elements in our communication. Consequently, regular access to your AUB email account and familiarity with the internet are crucial if you are to keep up with the developments of this course. In addition, some instructions and announcements might be given only during class and it is your responsibility to make sure you are aware of those if you miss a session.

**Attendance:** I expect students to be present and on time for all classes. Attendance records will be taken. Students are to be in class at the latest 1 minute prior to class time. **Students who arrive late** (i.e. after class started) **will not be allowed in class and will be considered absent.** Attendance will count towards the final grade: beyond two absences without valid excuse, **each additional absence will result in 2% being deducted from the final grade**, up to a maximum of 20% of the total grade. Students who miss more than 1/5 of the total number of classes without valid excuse in the first ten weeks of the semester may be asked to drop the course. Students are responsible for keeping track of their own attendance. Warnings may or may not be given.

Missing an exam will lead to a make-up exam **only** if the excuse is valid. Late assignments will not be accepted and will result in a grade of zero, unless a valid excuse is provided, in which case the overall assignment grade will be based on the other assignments.

Valid reasons for absences, missed exams or assignments are limited to illnesses (medical or psychological) and family emergencies. They will have to be documented by a note from the University Health Services, the Counseling Centre, or a document that is acceptable by the AUB administration. Excuses that are not health- or emergency-related might be acceptable for absences (but not exams or assignments), provided they are discussed with me beforehand and documented.

## 7) University Policies

**Disability:** AUB strives to make learning experiences as accessible as possible. If you anticipate or experience academic barriers due to a visible or invisible disability (including mental health, chronic or temporary medical conditions), please inform me immediately so that we can privately discuss options. In order to help establish reasonable accommodations and facilitate a smooth accommodations process, contact the Accessible Education Office (AEO), preferentially in the first few weeks of the semester: [accessibility@aub.edu.lb](mailto:accessibility@aub.edu.lb); +961-1-350000, Ext. 3246; West Hall, 314. In most cases, I will expect to see an official AUB letter of accommodations from the AEO.

Additional information:

<https://www.aub.edu.lb/sao/Documents/Process%20Map%20for%20Students.pdf>

[https://www.aub.edu.lb/sao/accessible\\_education/Pages/home.aspx](https://www.aub.edu.lb/sao/accessible_education/Pages/home.aspx)

**Academic integrity:** Cheating at exams, plagiarism, presenting work you did not do, violating rules of proper academic conduct and other related matters will not be tolerated and will be dealt with according to strict AUB policies. Although you may consult and seek advice from each other on assignments, you are expected to present your own original work for grading (i.e. you are supposed to do the required work on *R* and report it yourself independently). Failure to present your own original work will result in disciplinary measures. Please refer to AUB Student Code of Conduct: <http://www.aub.edu.lb/pnp/generaluniversitypolicies/Documents/StudentCodeConduct/StudentCodeConduct.pdf>, in particular section 1.1.

**Non-Discrimination:** AUB is committed to facilitating a campus free of all forms of discrimination including sex/gender-based harassment prohibited by Title IX. The University's non-discrimination policy applies to, and protects, all students, faculty, and staff. If you think you have experienced discrimination or harassment, including sexual misconduct, we encourage you to tell someone promptly. If you speak to a faculty or staff member about an issue such as harassment, sexual violence, or discrimination, the information will be kept as private as possible, however, faculty and designated staff are required to bring it to the attention of the University's Title IX Coordinator. Faculty can refer you to fully confidential resources, and you can find information and contacts at [www.aub.edu.lb/titleix](http://www.aub.edu.lb/titleix) . To report an incident, contact the University's Title IX Coordinator Trudi Hodges at 01-350000 ext. 2514, or [titleix@aub.edu.lb](mailto:titleix@aub.edu.lb). An anonymous report may be submitted online via EthicsPoint at [www.aub.ethicspoint.com](http://www.aub.ethicspoint.com).