College of Arts & Sciences
Department of Psychology
Oakland University

PSY 2510, Statistics in Psychology, Winter 2018

This course was formerly titled "PSY 251: Statistics and Research Design."
Students who took "PSY 251" under that title may not repeat it except for grade improvement.

Instructor: Kanako Taku
Course Section #10379
Class Time: T&Th 10am-11:47am
Classroom: SFH 169
Office: 123 Pryale Hall
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Office Phone: 248-370-2309
Office Hours: 3pm-4pm on Fridays and by appointment

Graduate Teaching Assistant:

- Travis Ray, travisray@oakland.edu: Office Hours: Thursday noon – 2pm and by appointment. He will be in F49 in the College of Arts and Sciences Annex (CAS) Building.

Undergraduate Teaching Assistants:

- Alex Orille, acorille@oakland.edu: Office Hours: Tuesday and Thursday noon – 2:30pm and by appointment. He will be in the computer room of Pryale Hall during his office hour.
- Judd Koujane, juddkoujane@oakland.edu: Office Hours: Tuesday and Thursday noon – 2:30pm and by appointment. She will be in the computer room of Pryale Hall during her office hour.

Volunteer Undergraduate Teaching Assistants:

- Rachel Burnett, rburnett@oakland.edu: Office Hours: Wednesdays 3 – 5pm and by appointment. She will be in the computer room of Pryale Hall during her office hour.
- Olivia Collins, oliviacollins@oakland.edu: Office Hours: Wednesdays 3 – 5pm and by appointment. She will be in the computer room of Pryale Hall during her office hour.

Course Description

This course presents the principal statistical procedures employed in social science research and covers an introduction to descriptive statistics, probability, and inferential statistics necessary to carry out and interpret social science research. The integration of methodological and statistical issues will be emphasized.

Course Prerequisites: PSY 250 (or PSY 2500) and MTH 062 (or MTH 0662) with a minimum grade of 2.0; MTH 062 (or MTH 0662) may be satisfied with math placement of level R or ACT math score of 22 or higher.

Required Textbook and Supporting Course Material:

1. Aron, A., Coups, E. J., & Aron, E. N. (2012). Statistics for Psychology, sixth edition. Pearson Prentice Hall. ISBN-10: 0205258158 (Fifth edition, Aron, Aron, & Coups (2009) ISBN-10: 0136043003, is also OK).
2. SPSS– It is the student's responsibility to obtain secure access to SPSS (available in the library and Pryale Hall).
3. It is the student's responsibility to print out or download class material posted on Moodle and bring it to class.

Calculator: A basic, four-function calculator with a square root key is **required** for this course and will be used in class. Automatic statistical functions found on advanced calculators may **not** be used in exams.

Outcomes

Course Objectives:

1. Demonstrate knowledge and understanding of the statistical techniques that would be used to analyze the different types of psychological data.
2. Increase ability to interpret "Results" section of journal papers.
3. Present and explain the outcome of the statistical analyses, including *z* test, *t* test, ANOVA, chi-square tests, correlation, regression, path analysis, and factor analysis.
4. Understand the rationale underlying the manual computations that yield statistics.

Expectations

Students are expected to conduct themselves in a manner conducive to an environment of academic integrity and respect for the educational process and the safety and well-being of all members of the community. Adherence to the Student Code of Conduct will be expected; violations of this code will be reported to the Dean of Students. The Code of Academic and Student Conduct can be found at https://www.oakland.edu/deanofstudents/conduct-regulations/. Questions about potential violations or questions concerning the application of the Code in this course should be raised in advance.

Add/Drops & Incompletes: The University add/drop and incomplete grade policies will be explicitly followed. It is the student's responsibility to be aware of the University deadline dates for dropping the course.

Make-up Examinations: Verification of the reason for not taking an exam (e.g., a documented medical or family emergency) is required prior to the exam; if a make-up exam is granted, the time and nature of that exam will be

determined by the professor. If you miss a regularly scheduled exam or a scheduled make-up exam without providing an excuse prior to the exam, you will receive a zero for that exam.
Special Considerations: A student with a documented learning or physical disability must contact the **Office of Disability Support Services**, 103A North Foundation Hall, (248) 370-3266, and inform the professor of special needs during first week of classes. For more information, visit http://www.oakland.edu/dss.

Grade Determination

Grades in this course will be based on evaluations of the following materials:

- *Exams:* Four exams including the Final Exam (multiple choice, essays, and computation problems)
- *Homework:* You will be required to complete five homework assignments.
- *Quiz log*: You will be required to answer four questions in a quiz log for each class.
- *Make-up Exams:* If you cannot take an exam at the scheduled time, you must notify the professor before the exam begins. A make-up exam may be arranged only if a valid excuse with a written document is provided.

Grade Calculation: *The sum of points earned in all activities will be converted to a percentage of all points possible.*
Grading Scale: (see details presented in the next section)
A:89.6% of material B:79.6% of material C:69.6% of material D:59.6% of material F: <59.6% of material

Course Requirements

- **HOMEWORK**: To enhance your understanding, you will be required to complete your homework and hand it in to the instructor at the beginning of class on its designated due date. It is the student's responsibility to print out the homework and **submit a hard copy** to the instructor **(Electronic files are not accepted).** You may complete your homework in a group of no more than three students. If you decide to work with your classmates, please turn in one homework and attach two (or three) individual cover sheets. If you turn in the exact same homework separately (as if it is completed by one person, independently), your work will be considered as plagiarism. Each homework assignment is worth a possible 20 points. In case you cannot turn in the homework because of an absence, you will lose the chance to earn the 20 points. By the end of the semester, if you correctly complete each assignment, you will earn 100 points (= 5 homework × 20points). If you complete it with others, everyone will receive the same score, regardless of participation.
- **LOG**: During each class period, you will be required to answer four questions in a quiz log – three questions worth 1 point each and one short-answer question worth 2 points (a possible 5 points for each class period). This log will be provided to you at the beginning of each class and collected at the end of class. The log will be graded after every class, allowing you to keep track of your daily progress. If you miss a day of class, you will have the chance to answer the questions from the day you missed during the following class period. If you fail to fill out the quiz log, or are absent a second consecutive day, you will lose the points for that day (the cell will receive a diagonal line). If you correctly complete the entire quiz log, you will earn 115 points. **The due date for the last cell is April 17.**
- **EXAMS**: There will be four exams over the course of the semester, three non-cumulative exams and a final exam (see note for Final Exam). **It is the student's responsibility to bring a pencil, eraser, and calculator** to each exam. Each exam will include multiple-choice and essay questions with a calculation problem, and will be worth 100 points.
- **FINAL EXAM**: 50% of the questions on the final exam will be from the information presented since the third exam, and the other 50% will be comprehensive. The format of the final exam will be similar to the other three exams. The final exam will be worth 100 points. No make-ups will be offered for the final exam. If you have a scheduling conflict, it is your responsibility to contact the instructor at least three days prior to the exam date to arrange for re-scheduling. **If re-scheduled, the exam will occur before, not after, the scheduled exam day**.
- **POLICY ON ACADEMIC MISCONDUCT:** The University's regulations that relate to academic misconduct will be fully enforced. Any student suspected of cheating and/or plagiarism will be reported to the Dean of Students and, thereafter, to the Academic Conduct Committee for adjudication. Anyone found guilty of academic misconduct in this course may receive a course grade of 0.0, in addition to any penalty assigned by the Academic Conduct Committee. Students found guilty of academic misconduct by the Academic Conduct Committee may face suspension or permanent dismissal. The full policy on academic misconduct can be found in the General Information section of the Undergraduate Catalog.
- **FACULTY FEEDBACK:** As a student in this class, you may receive "Faculty Feedback" in your OU e-mail if your professor identifies areas of concern that may impede your success in the class. Faculty Feedback typically occurs during weeks 2-5 of the Fall and Winter terms, but may also be given later in the semester and more than once a semester. A "Faculty Feedback" e-mail will specify the area(s) of concern and recommend action(s) you should take. Please remember to check your OU email account regularly as that is where it will appear.
- **AUDIO- RECORDING POLICIES**: Students who wish to audio-record lectures may request permission to do so. These recordings may only be used for the purpose of personal study. Students may not share these recordings with other individuals without the consent of the professor. At the conclusion of the semester, students may request permission to keep these recordings if needed, otherwise it is expected that all audio-recordings will be deleted from all electronic recording and storage devices.
- **DEPARTMENTAL POLICY FOR RESOLUTION OF STUDENT ACADEMIC-RELATED CONCERNS:** The student has an obligation to attempt to resolve all academic-related concerns with the instructor. If a suitable solution cannot be reached, then the student should consult the Department of Psychology Procedure for the Resolution of Student Academic-Related Concerns at https://www.oakland.edu/Assets/Oakland/psychology/files-and-documents/Undergrad-Advising/Resolution%20of%20Student%20Concerns-04-2017-approved%20full%20doc.pdf.

- **VETERAN SUPPORT SERVICES:** The office of Veteran Support Services (VSS) is responsible for giving support services to more than 300 veterans, service members, and dependents of veterans. VSS is staffed with personnel who are veterans and current or former students. Any student veteran or dependent of a veteran requiring assistance with navigating the Veterans Administration, understanding service-related benefits, or requires referrals to campus and community resources should contact one of the Veterans Liaisons by visiting 116 North Foundation Hall, or phoning 248-370-2010. http://wwwp.oakland.edu/veterans/
- **EXCUSED ABSENCE POLICY:** University excused absences applies to participation as an athlete, manager or student trainer in NCAA intercollegiate competitions, or participation as a representative of Oakland University at academic events and artistic performances approved by the Provost or designee. For the OU excused absence policy, see http://wwwp.oakland.edu/provost/policies-and-procedures/.
- **PREFERRED NAME POLICY:** If you do not identify with the name that is listed with the registrar's office, please notify me so that I may appropriately amend my records. In addition, if you prefer to go by different pronouns, please inform me. For more information on indicating a preferred first name on university records please visit: https://www.oakland.edu/uts/common-good-core-resources/name-services/

GRADES: Grades will be determined by summing the scores obtained on each of the exams, homework, and quiz log, and then using the following criteria.

4.0=100-98.60	3.5=89.59-88.60	2.9=79.59-78.60	2.3=73.59-72.60	1.6=66.59-65.60
3.9=98.59-96.60	3.4=88.59-86.60	2.8=78.59-77.60	2.2=72.59-71.60	1.5=65.59-64.60
3.8=96.59-94.60	3.3=86.59-84.60	2.7=77.59-76.60	2.1=71.59-70.60	1.4=64.59-63.60
3.7=94.59-92.60	3.2=84.59-82.60	2.6=76.59-75.60	**2.0=70.59-69.60**	1.3=63.59-62.60
3.6=92.59-89.60	3.1=82.59-80.60	2.5=75.59-74.60	1.9=69.59-68.60	1.2=62.59-61.60
	3.0=80.59-79.60	2.4=74.59-73.60	1.8=68.59-67.60	1.1=61.59-60.60
			1.7=67.59-66.60	1.0=60.59-59.60

Points Possible:	Homework	(20 × 5 =) 100
	Quiz log	115
	First, Second, and Third exams and Final Exam	100 × 4 = 400
	TOTAL	615 (Total score will be converted to percentile; see above)

Please note that the dates listed below are tentative and subject to change, depending upon how quickly we are able to cover the materials, the degree of class participation and discussion, time needed for review, and so on. Significant changes in the schedule (e.g., dates of exams or due) will be announced in a timely manner.

Detailed Class Schedule and Topical Outline

Session	Date	Topic	Text	Homework/ Assignment
1	Jan 4	Introduction; Syllabus review; Nominal and numeric variables Overview of SPSS	p.1-6 (Ch.1)	
2	Jan 9	Frequency tables; Skewed and kurtosis; Histogram and Bar Graphs	p.7-33 (Ch.1)	
3	Jan 11	Central tendencies; Mean, median, and mode Variability (variance, SD)	p.34-67 (Ch.2)	
4	Jan 16	Z scores; Normal curve; Converting raw scores to z scores	p.68-84 (Ch.3)	
5	Jan 18	Probability; cut-off z scores, raw scores; Five steps of hypothesis testing	p.85-119 (Ch.3, 4)	Homework 1 due
6	Jan 23	One/Two-tailed; Review for Exam 1	p.120-138 (Ch.4)	
7	**Jan 25**	**Exam 1**	**p.1-138**	**Bring calculator**
8	Jan 30	Distribution of means; Z tests; Standard errors; Type I, II errors	p.139-180 (Ch.5, 6)	
9	Feb 1	Effect size Statistical power; Influences on power	p.181-225 (Ch.6)	Homework 2 due
10	Feb 6	One sample *t* test; Degrees of freedom *t* distribution; How to use a *t* table	p.226-239 (Ch.7)	
11	Feb 8	*t* test for dependent means (repeated measures designs; paired-samples *t* test)	p.240-274 (Ch.7)	
12	Feb 13	*t* test for independent means	p.275-290 (Ch.8)	Homework 3 due
13	Feb 15	*t* test for independent means; SPSS	p.291-315 (Ch.8)	
14	Feb 27	*Review for Exam 2*		

15	**Mar 1**	**Exam 2**	**p.139-315**	**Bring calculator**
16	Mar 6	One-way ANOVA; *F* ratio Hypothesis testing for ANOVA	p.316-339 (Ch.9)	
17	Mar 8	Planned contrasts; Post hoc comparison; Running one-way ANOVA in SPSS	p.340-376 (Ch.9)	
18	Mar 13	Factorial ANOVA; marginal means Main effects and interaction effect	p.377-392 (Ch.10)	
19	Mar 15	Factorial ANOVA in SPSS; Graphing and patterns of correlation	p.393-450 (Ch.10)	
20	Mar 20	Correlation; SPSS Linear prediction rule and regression	p.451-508 (Ch.11, 12)	Homework 4 due
21	Mar 22	Bivariate linear regression Multiple regression prediction rule	p.509-541 (Ch.12)	
22	Mar 27	Regression in SPSS; General linear model	p.618-623 (Ch.15)	
23	Mar 29	Review for Exam 3		
24	**Apr 3**	**Exam 3**	**p.316-541&618-623**	**Bring calculator**
25	Apr 5	Chi-square test for goodness of fit	p.542-552 (Ch.13)	Homework 5 due
26	Apr 10	Chi-square tests for independence	p.553-584 (Ch.13)	
27	Apr 12	Reliability (Cronbach); validity	p.625-626 (Ch.15)	
28	Apr17	Review for Final Exam		Due for the last cell of the quiz log
	TBA	**Final Exam** 4/19 - 8-11	**P.1-584 & 618-623 & 625-626**	**Bring calculator**

Assignments and Exams	**Possible Score**	**Accumulative Possible Score**
Homework 1	/20	/20
Exam 1	/100	/120
Homework 2	/20	/140
Homework 3	/20	/160
Exam 2	/100	/260
Homework 4	/20	/280
Exam 3	/100	/380
Homework 5	/20	/400
Final Exam	/100	/500
Quiz Log	/115	/615

Of total 615, you will need 429 to pass this course with a grade of 2.0.

[For your note]

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3.9=98.59-96.60	3.4=88.59-86.60	2.8=78.59-77.60	2.2=72.59-71.60	1.5=65.59-64.60
3.8=96.59-94.60	3.3=86.59-84.60	2.7=77.59-76.60	2.1=71.59-70.60	1.4=64.59-63.60
3.7=94.59-92.60	3.2=84.59-82.60	2.6=76.59-75.60	**2.0=70.59-69.60**	1.3=63.59-62.60
3.6=92.59-89.60	3.1=82.59-80.60	2.5=75.59-74.60	1.9=69.59-68.60	1.2=62.59-61.60
	3.0=80.59-79.60	2.4=74.59-73.60	1.8=68.59-67.60	1.1=61.59-60.60
			1.7=67.59-66.60	1.0=60.59-59.60