



## COURSE OUTLINE

# PSY400 Research Methods and Analysis 4

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2022 | Semester 1

USC Sunshine Coast  
USC Moreton Bay

**BLENDED  
LEARNING**

Most of your course is on campus but you may be able to do some components of this course online.

*Please go to the USC website for up to date information on the teaching sessions and campuses where this course is usually offered.*

## 1. What is this course about?

### 1.1. Description

This course develops advanced knowledge in multivariate research design and statistics for null hypothesis significance testing (NHST), as well as developing intermediate level knowledge in alternatives to the NHST approach (Bayesian models) and qualitative data analysis. Multivariate research designs, data cleaning, assumption testing in multivariate designs, as well as power, effect size, and conditional probability will be examined. Proficiency in the use of MANOVA, MANCOVA, repeated measures MANOVA, logistic regression, discriminant function analysis/profile analysis, factor analytic approaches, structural equation modelling, thematic analysis, sensitivity/specificity analysis, and receiver operating curve (ROC) analysis will be developed. The course prepares you to undertake Honours and higher degree dissertations and to conduct professional research.

### 1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
<b>BLENDED LEARNING</b>			
<b>Learning materials</b> – 1 hour asynchronous learning materials	1hr	Week 1	13 times
<b>Tutorial/Workshop 1</b> – 2 hour on campus computer workshop	2hrs	Week 1	13 times

### 1.3. Course Topics

- Experimental design principles
- Univariate, bivariate and multivariate research designs
- Sources of statistical error in multivariate designs
- Sampling, sample size, power and effect size
- Data cleaning – missing values, skewed data and use/misuse of data transformation
- Refresher on ANOVA, ANCOVA and repeated measures ANOVA
- Multiple DV designs – using MANOVA, MANCOVA and repeated measures MANOVA
- Multiple predictor designs – using Multiple Regression and Logistic Regression
- Extending beyond MANOVA and regression – Multiple Discriminant Analysis
- Exploring the structure of relationships between variables – Factor Analysis (Confirmatory and Exploratory)
- Exploring multivariate relationships between IVs and DVs – Mediation/Moderation Analysis and Structural Equation Modelling
- Thematic qualitative analysis
- Bayes Theorem and conditional probability
- Bayesian statistical techniques – odds ratio, likelihood ratio, sensitivity/specificity, receiver operating curve analysis
- Big issues in research design and analysis – big n sample sizes, effect size and meaningfulness of probabilities.

## 2. What level is this course?

400 Level (Graduate)

Demonstrating coherence and breadth or depth of knowledge and skills. Independent application of knowledge and skills in unfamiliar contexts. Meeting professional requirements and AQF descriptors for the degree. May require pre-requisites where discipline specific introductory or developing knowledge or skills is necessary. Normally undertaken in the third or fourth full-time study year of an undergraduate program.

## 3. What is the unit value of this course?

12 units

## 4. How does this course contribute to my learning?

COURSE LEARNING OUTCOMES	GRADUATE QUALITIES
On successful completion of this course, you should be able to...	Completing these tasks successfully will contribute to you becoming...
1 Demonstrate knowledge of a range of advanced research designs and methodologies used in psychological research.	Knowledgeable
2 Demonstrate appropriate use of multivariate statistical techniques for the analysis of psychological data.	Creative and critical thinker Empowered
3 Apply multivariate quantitative techniques and qualitative techniques and to the analysis of psychological data.	Creative and critical thinker Empowered
4 Write and present complex research findings in a scientific fashion.	Empowered
5 Demonstrate competence in the use of SPSS and AMOS for complex statistical analysis of psychological data.	Empowered
6 Demonstrate knowledge and application of Bayes theorem and statistical techniques in psychological research	Knowledgeable

## 5. Am I eligible to enrol in this course?

Refer to the [USC Glossary of terms](#) for definitions of “pre-requisites, co-requisites and anti-requisites”.

5.1. Pre-requisites

Enrolled in Program AR403, AR405 or AR645

5.2. Co-requisites

Not applicable

5.3. Anti-requisites

Not applicable

5.4. Specific assumed prior knowledge and skills (where applicable)

Not applicable

6. How am I going to be assessed?

6.1. Grading Scale

Standard Grading (GRD)

High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL).

6.2. Details of early feedback on progress

Practice quizzes, with access to answers, will be provided online in Canvas, aligned appropriately with the content material to be assessed in the first Task assessment in Week 6, in earlier weeks.

6.3. Assessment tasks

DELIVERY MODE	TASK NO.	ASSESSMENT PRODUCT	INDIVIDUAL OR GROUP	WEIGHTING %	WHAT IS THE DURATION / LENGTH?	WHEN SHOULD I SUBMIT?	WHERE SHOULD I SUBMIT IT?
All	1	Quiz/zes	Individual	25%	110 minutes	Week 6	In Class
All	2	Essay	Individual	30%	2000 words maximum	Week 9	Online Submission
All	3	Examination - Centrally Scheduled	Individual	45%	2 hours with 10 minutes reading time	Exam Period	Exam Venue

All - Assessment Task 1: Quiz/zes

<b>GOAL:</b>	Demonstrate an understanding of MANOVA, MANCOVA and repeated measures MANOVA analyses. This assessment involves an in-class test to be undertaken in Week 6. The test will be applied in the computer laboratory and involve providing answers to questions covering analyses covered in Weeks 1-4. Students will engage with supplied SPSS datasets from which specific statistical tests must be conducted, and results interpreted, in order to provide answers to set questions.		
<b>PRODUCT:</b>	Quiz/zes		
<b>FORMAT:</b>	The test will only be available during the scheduled tutorial times and students must attend their allocated tutorial in order to sit the test. The full tutorial time (110 minutes) will be allowed for completion of the test. The test will be open-book/lecture notes.		
<b>CRITERIA:</b>	<b>No.</b>		<b>Learning Outcome assessed</b>
	1	Identification and application in SPSS of appropriate statistical analyses	1 2 3
	2	Correct interpretation of statistical results	4
	3	Correct APA formatting of results	4

### All - Assessment Task 2: Essay

<b>GOAL:</b>	Understanding of research topic literature, hypotheses and appropriate data analyses.	
<b>PRODUCT:</b>	Essay	
<b>FORMAT:</b>	This assessment focuses on you providing a 2000 word structured response, and discussion, of your own thesis topic, hypotheses, and appropriate research design planning. This will lead to a clear statement as to the intended data analysis techniques, including a discussion of planned assumption testing and potential data transformations. The essay must describe the topic, key concepts, hypotheses, key variables/measurements, appropriate research design, statistical techniques and assumption tests and discuss potential strategies, including data transformations, that could be employed in instances where statistical assumptions have been violated. Where appropriate, qualitative research approaches should feature, following presentation of research question and literature review, the case for a qualitative methodology and method, sampling, ethics and data analysis.	
<b>CRITERIA:</b>	<b>No.</b>	<b>Learning Outcome assessed</b>
	1	The effective presentation of an Introduction (maximum 500 word summary of the thesis topic, including a minimum of five key references. This section should include a discussion of conceptual relevance and relationships) 4
	2	The effective presentation of research Hypotheses (at least two alternative hypotheses should be provided with the presentation of null hypotheses). 4
	3	An effective short description of Measurements/Variables. 4
	4	Demonstrated competence in identifying and reporting the appropriate statistical technique planned for assessing each of the hypotheses, and presentation of a discussion of any key analytic features of the statistical technique (e.g. effect size) 1 2 3
	5	Provision of a hypothetical example of APA Publication Style format reporting of each chosen statistical technique's key statistics. 4
	6	Demonstrated competence in identifying and reporting the assumption tests appropriate to the chosen statistical techniques. 1 3 5 6
	7	Correct identification of appropriate data transformations and other strategies to address any violations of statistical assumptions. 2 3 5 6
	8	Demonstrated knowledge of SPSS functions relevant to assumption testing and data transformation. 3 5 6
	9	Demonstrated knowledge of APA Publication Style for the Running-Head/Title Page, Introduction, Method Sections, and References. 4

### All - Assessment Task 3: Final examination

<b>GOAL:</b>	You will demonstrate understanding of multivariate research design and the use and interpretation of advanced research analytic techniques covered in the course between weeks 1-13.	
<b>PRODUCT:</b>	Examination - Centrally Scheduled	
<b>FORMAT:</b>	Open book, multiple choice and short answer format examination.	
<b>CRITERIA:</b>	<b>No.</b>	<b>Learning Outcome assessed</b>
	1	Identification of appropriate statistical analyses 1 3 5 6
	2	Correct interpretation of statistical results 2 3 5 6
	3	Correct APA formatting of results 4

## 7. Directed study hours

A 12-unit course will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. Directed study hours may vary by location. Student workload is calculated at 12.5 learning hours per one unit.

## 8. What resources do I need to undertake this course?

Please note: Course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Canvas site– Please log in as soon as possible.

### 8.1. Prescribed text(s) or course reader

Please note that you need to have regular access to the resource(s) listed below. Resources may be required or recommended.

REQUIRED?	AUTHOR	YEAR	TITLE	EDITION	PUBLISHER
Required	Andy Field	2018	Discovering Statistics Using IBM SPSS Statistics	5th	SAGE Publications Limited

### 8.2. Specific requirements

Access to USC computer laboratory for IBM SPSS Statistics, IBM SPSS AMOS, and NVIVO; and/or access to a stable internet connection to access USC's virtual machine environment (which then accesses SPSS and NVMO remotely)

## 9. How are risks managed in this course?

Health and safety risks for this course have been assessed as low. It is your responsibility to review course material, search online, discuss with lecturers and peers and understand the health and safety risks associated with your specific course of study and to familiarise yourself with the University's general health and safety principles by reviewing the [online induction training for students](#), and following the instructions of the University staff.

## 10. What administrative information is relevant to this course?

### 10.1. Assessment: Academic Integrity

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud; including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Canvas, are electronically checked through Turnitin. This software allows for text comparisons to be made between your submitted assessment item and all other work to which Turnitin has access.

### 10.2. Assessment: Additional Requirements

Your eligibility for supplementary assessment in a course is dependent of the following conditions applying:

The final mark is in the percentage range 47% to 49.4%

The course is graded using the Standard Grading scale

You have not failed an assessment task in the course due to academic misconduct.

### 10.3. Assessment: Submission penalties

Late submission of assessment tasks may be penalised at the following maximum rate:

- 5% (of the assessment task's identified value) per day for the first two days from the date identified as the due date for the assessment task.

- 10% (of the assessment task's identified value) for the third day - 20% (of the assessment task's identified value) for the fourth day and subsequent days up to and including seven days from the date identified as the due date for the assessment task.

- A result of zero is awarded for an assessment task submitted after seven days from the date identified as the due date for the assessment task. Weekdays and weekends are included in the calculation of days late. To request an extension you must contact your course coordinator to negotiate an outcome.

### 10.4. SafeUSC

USC is committed to a culture of respect and providing a safe and supportive environment for all members of our community. For immediate assistance on campus contact SafeUSC by phone: [07 5430 1168](tel:0754301168) or using the [SafeZone](#) app. For general enquires contact the SafeUSC team by phone [07 5456 3864](tel:0754563864) or email [safe@usc.edu.au](mailto:safe@usc.edu.au).

The SafeUSC Specialist Service is a Student Wellbeing service that provides free and confidential support to students who may have experienced or observed behaviour that could cause fear, offence or trauma. To contact the service call [07 5430 1226](tel:0754301226) or email [studentwellbeing@usc.edu.au](mailto:studentwellbeing@usc.edu.au).

### 10.5. Study help

For help with course-specific advice, for example what information to include in your assessment, you should first contact your tutor, then your course coordinator, if needed.

If you require additional assistance, the Learning Advisers are trained professionals who are ready to help you develop a wide range of academic skills. Visit the [Learning Advisers](#) web page for more information, or contact Student Central for further assistance: +61 7 5430 2890 or [studentcentral@usc.edu.au](mailto:studentcentral@usc.edu.au).

### 10.6. Wellbeing Services

Student Wellbeing provide free and confidential counselling on a wide range of personal, academic, social and psychological matters, to foster positive mental health and wellbeing for your academic success.

To book a confidential appointment go to [Student Hub](#), email [studentwellbeing@usc.edu.au](mailto:studentwellbeing@usc.edu.au) or call 07 5430 1226.

### 10.7. AccessAbility Services

Ability Advisers ensure equal access to all aspects of university life. If your studies are affected by a disability, learning disorder mental health issue, injury or illness, or you are a primary carer for someone with a disability or who is considered frail and aged, [AccessAbility Services](#) can provide access to appropriate reasonable adjustments and practical advice about the support and facilities available to you throughout the University.

To book a confidential appointment go to [Student Hub](#), email [AccessAbility@usc.edu.au](mailto:AccessAbility@usc.edu.au) or call 07 5430 2890.

### 10.8. Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Administration of Central Examinations
- Deferred Examinations
- Student Academic Misconduct
- Students with a Disability

Visit the USC website: <https://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching>

### 10.9. Student Charter

USC is committed to excellence in teaching, research and engagement in an environment that is inclusive, inspiring, safe and respectful. The [Student Charter](#) sets out what students can expect from the University, and what in turn is expected of students, to achieve these outcomes.

### 10.10. General Enquiries

#### In person:

- **USC Sunshine Coast** - Student Central, Ground Floor, Building C, 90 Sippy Downs Drive, Sippy Downs
- **USC Moreton Bay** - Service Centre, Ground Floor, Foundation Building, Gympie Road, Petrie
- **USC SouthBank** - Student Central, Building A4 (SW1), 52 Merivale Street, South Brisbane
- **USC Gympie** - Student Central, 71 Cartwright Road, Gympie
- **USC Fraser Coast** - Student Central, Student Central, Building A, 161 Old Maryborough Rd, Hervey Bay
- **USC Caboolture** - Student Central, Level 1 Building J, Cnr Manley and Tallon Street, Caboolture

**Tel:** +61 7 5430 2890

**Email:** [studentcentral@usc.edu.au](mailto:studentcentral@usc.edu.au)