



**O.P. Jindal Global University**

*A Private University Promoting Public Service*

NAAC Accreditation - 'A' Grade

---

## OFFICE OF DOCTORAL STUDIES (ODS) O.P. JINDAL GLOBAL UNIVERSITY SONIPAT

---

### COURSE INFORMATION

PROGRAMME	:	Ph.D.
SEMESTER	:	FALL / SPRING
SUBJECT CODE	:	DS-C-002
NO. OF CREDITS	:	3
SUBJECT	:	QUANTITATIVE RESEARCH METHODS
MEETINGS	:	3 HOURS / WEEK
LOCATION	:	Hybrid

### INSTRUCTOR INFORMATION

INSTRUCTOR	:	Dr. KRISHAN K. PANDEY & Dr. MOHITA JUNNARKAR
EMAIL	:	<a href="mailto:kkpandey@jgu.edu.in">kkpandey@jgu.edu.in</a> & <a href="mailto:mjunnarkar@jgu.edu.in">mjunnarkar@jgu.edu.in</a>
PHONE (☎)	:	08396907453
OFFICE HOURS	:	PRIOR APPOINTMENT
HOME PAGE	:	<a href="http://www.krishanpandey.com">www.krishanpandey.com</a>

---

**O. P. JINDAL GLOBAL UNIVERSITY**

**OFFICE OF DOCTORAL STUDIES**

Sonipat-Narela Road, Near Jagdishpur Village, Sonipat,

Haryana-131001, India.

Web : [www.jgu.edu.in](http://www.jgu.edu.in)

# **COURSE MANUAL**

## **COURSE DESCRIPTION & AIM**

Quantitative research methodology course covers the meaning of research, its sequential development, types, and steps of the scientific method applied to various domain areas. This course provides an overview of Quantitative research methods and the requirements needed to conduct quality research. Quantitative research is conducted to provide trustworthy information with a strong logical platform by systematically applying few of its tool from the family of method. The knowledge from this course will help and inform students how to read and understand research reports, analyze and interpret results, prepare a research design, and finalize a research project.

**PREREQUISITES:** Basic and conceptual understanding of Business Statistics course.

## **COURSE LEARNING OUTCOMES**

The course provides a strong grounding in understanding the research process enabling students to either engage an external research organization to undertake a study on their behalf in a business environment or, alternatively, action and complete a research project themselves as either the sole researcher or as part of a research team. In addition to the technical skills and knowledge required to be successful in these endeavors, the course also provides students with a clear understanding of the ethical considerations involved in undertaking research and the special challenges evidenced in international and cross-cultural studies.

On successful completion of this course students will be able to:

1. Apply an advanced understanding of quantitative research design options, methodologies and analysis methods, including respective terms, definitions and applications to the design, implementation and evaluation of a research project.
2. Distil an identified business problem into a succinct research problem (or problems) and articulate this into a comprehensive research brief for investigation by a research team locally or internationally.
3. Complete, from the brief created, a research proposal for implementation at either a local or international level.
  - This will include (but not be restricted to), a literature summary at the necessary level of depth to ensure a thorough understanding of what is already known about the problem to

be addressed, the proposed research design, data collection, sampling, analysis methods to be employed along with an indicative time frame for each stage of the research proposed and budget.

4. Recognize, and take account of, the importance of ethical conduct in undertaking research, including potential implications for business relationships, effects on potential respondents and sensitivity to cultural differences and honesty and integrity in analysis and reporting in the design, implementation and evaluation of a research project.

PhD Programme Competency Goals (PCGs)	PhD Programme Learning Objectives (PLOs)
	Students will be able to
<b>Domain and Technological Knowledge:</b> Ability to understand and apply relevant business and technological knowledge	1. Demonstrate expert & authoritative understanding of knowledge at the frontier of a relevant scholarly field.
	2. Demonstrate excellent application of research methods and technologies appropriate to the relevant scholarly field.
<b>Effective communication:</b> Ability to effectively exchange ideas and information	3. Attend at least one legitimated scholarly research conference to present their PhD research ideas and information through oral presentations.
	4. Submit and publish two scholarly articles based on their PhD research in Scopus-indexed journals.
<b>Research Capability:</b> Ability to undertake research to make an original contribution in the relevant field	5. Critically evaluate existing theories, and research methodologies and techniques, within the relevant field to generate original knowledge
	6. Undertake an independent research investigation to generate original knowledge.
<b>Teaching Capability:</b> Ability to develop skills and experience in designing and teaching in both formal and informal venues	7. Complete the teaching of an assigned university course or class(es) or seminar(s) within a course
	8. Demonstrate teaching competency through evaluations for each taught course or class / seminar

## GOALS, OBJECTIVES, MODULE & ASSESSMENT

GOALS	OBJECTIVES	MODULE	ASSESSMENTS
Upon successful completion of this course, students should be able to know/understand:	Upon successful completion of this course, students should be able to:	Syllabus outline	How the student will be assessed on these learning objectives:
<ul style="list-style-type: none"> <li>✓ Problem formulation process</li> <li>✓ Research process</li> <li>✓ Research designs</li> <li>✓ Types of Research</li> </ul>	<ul style="list-style-type: none"> <li>✓ Formulate research problem</li> <li>✓ Analyze research process</li> <li>✓ Classify research designs</li> <li>✓ Define types of research</li> </ul>	Introduction to Marketing Research , Research Process Research Designs & Type of Research	Class Participation / Reflections / Random Questions
<ul style="list-style-type: none"> <li>✓ Methods of data collection</li> <li>✓ Sampling Techniques</li> <li>✓ Measurement &amp; scaling techniques</li> <li>✓ Questionnaire designing</li> </ul>	<ul style="list-style-type: none"> <li>✓ Analyze the concept of data collection process</li> <li>✓ Construct Sampling design</li> <li>✓ Apply Measurement &amp; scaling techniques</li> <li>✓ Design Questionnaire</li> </ul>	Data Collection Methods, Sampling, Measurement & Scaling Techniques	Class Participation / Reflections / Random Questions/ assignment / quiz Group Assignments
<ul style="list-style-type: none"> <li>✓ Concepts of Hypothesis testing</li> <li>✓ Large &amp; small sample test (T,Z,F &amp; Chi Square, etc.)</li> <li>✓ Analysis of Variance (ANOVA)</li> </ul>	<ul style="list-style-type: none"> <li>✓ Analyze concept of hypothesis testing</li> <li>✓ Compare Large &amp; small sample test (T,Z,F &amp; Chi Square etc.)</li> <li>✓ Apply Analysis of Variance (ANOVA)</li> </ul>	Estimation & Hypothesis testing	Class Participation / Reflections / Random Questions/ assignment / quiz
<ul style="list-style-type: none"> <li>✓ Structure &amp; component of research reports</li> </ul>	<ul style="list-style-type: none"> <li>✓ Construct research proposal &amp; reports</li> </ul>	Report Writing Mechanics	Class Participation / Reflections / Presentations/ Write-Ups

## PEDAGOGY

- ✓ *Interactive approach during the study. (Students shall be advised in advance to prepare the topics for discussion in the class)*
- ✓ *Work in small groups and personalized teaching (Student counseling, tutoring, and individual projects/ assignments, exercises)*
- ✓ *Presentations, Case Study, Quizzes, Brainstorming, Random Questioning, Video Sessions, Whiteboard Marker, Problem solving using software's.*

## CONTINUOUS ASSESSMENT (INTERNALS)

Course Outcomes ↓	Continuous Evaluation Tools →	Case Studies	Experiential Exercise	Open Book & Surprise Test	Assignments /Discussion / Reflection
Learn how to Formulate research problem, research process, Classify research designs & types of research		✓	✓		✓
Understand the concept of data collection process, Construct Sampling design, Measurement & scaling techniques and Questionnaire Design		✓	✓		✓
Be able to apply concept of hypothesis testing (T,Z,F Chi square & Analysis of Variance (ANOVA))		✓	✓		✓
Learn how to Construct research proposal & reports		✓	✓	✓	

## EVALUATION RUBRIC

Criteria (Course Objectives)	1 (Unsatisfactory)	2 (Emerging)	3 (Proficient)	4 (Exemplary)
Learn how to Formulate research problem, research process, Classify research designs & types of research	Student cannot formulate research problem & can't Classify research designs & types of research.	Student can formulate research problem, Classify research designs & types of research somewhat.	Student can formulate research problem, Classify research designs & types of research most of the time.	Student can formulate research problem, Classify research designs & types of research all the time.
Understand the concept of data collection process, Construct Sampling design, Measurement & scaling techniques and Questionnaire Design	Student cannot conceptualize data collection process, Sampling & Questionnaire design.	Student can conceptualize data collection process, Sampling & Questionnaire design somewhat.	Student can conceptualize data collection process, Sampling & Questionnaire design most of the time	Student can conceptualize data collection process, Sampling & Questionnaire design all the time.
Be able to apply concept of hypothesis testing (T,Z, F Chi Square & Analysis of Variance (ANOVA))	Student cannot apply & explain the concept of hypothesis testing (T,Z, F Chi Square & Analysis of Variance (ANOVA))	Student can apply explain some of the concept of hypothesis testing (T,Z, F Chi Square & Analysis of Variance (ANOVA))	Student can apply explain most of the concept of hypothesis testing (T,Z, F Chi Square & Analysis of Variance (ANOVA))	Student can apply explain all of the concept of hypothesis testing (T,Z, F Chi Square & Analysis of Variance (ANOVA))
Learn how to Construct research proposal & reports	Student cannot Construct research proposal & reports.	Student can Construct research proposal & reports somewhat.	Student can Construct research proposal & reports most of the time.	Student can Construct research proposal & reports all time.

## EVALUATION & GRADING

Description	Weightage	Schedule
Formative Assessment	50%	Detailed Below
Summative Assessment	50%	Course Calendar

## FORMATIVE ASSESSMENT BREAKUP

First Component	50% weightage	Individual/ Group Assignment (Tentatively in 3rd week of course)
Second Component	50% weightage	Group Project, Class Test/ Quiz (During mid of course)

**QUIZZES & ASSIGNMENTS:** Written quizzes containing short theory questions/MCQ. Cooperation among the students is encouraged and the students must try the home work/assignments individually. Late assignments will not be accepted (mark of zero).

## SUMMATIVE ASSESSMENT

Summative assessments are quizzes and tests that evaluate how much someone has learned throughout a course. This assessment will be done through cases & analytical questioning methodology.

## PASSING CRITERIA

As per JGU guidelines for Doctoral Courses.

## ATTENDANCE

Daily participation is part of your grade in this class, so it is to your advantage to attend class regularly. Failure to attend class consistently will result in a failing grade. If you are absent, ask a classmate or your instructor about the work that you missed. Please try not to come to class late. The rule for ODS is as follows:

- When you are less than 10 minutes late, you are marked “late.”
- Three times “late” equals one time “absent.”
- You are also marked “absent” if you arrive more than ten minutes late.

As per ODS rules students are required to have minimum attendance of 75%. Students with less than said percentage shall not be allowed to appear in final examination.

**Cell Phones:** Cell phones and other electronic communication devices are not permitted in classes. Such devices MUST be turned off and left at the front or back of the room. Please turn off your cell phone and do not answer it during class. This will help the class work together without disruption.

**Missed Classwork:** You must be ready with assignments on the scheduled day. If you are absent, your grade will probably be 0. If you are absent due to a situation beyond your control, your teacher may or may not allow you to make up the missed work.

**E-Mail:** Generally important information related to the class will be transmitted via e-mail/SMS. The best way to arrange meetings with us or ask specific questions is by email.

**Statement of Ethical and Professional Conduct:** The JGU faculty, staff and students will follow the highest level of ethical and professional behavior. We will strive to be recognized as a community with legal, ethical and moral principles and to teach and practice professionalism in all that we do. In an academic environment we will endeavor to not only teach these values but also to live them in our lives and daily work. Faculty and staff will be held to the same standards and expectations as our students. Failure to abide by these principles will result in sanctions up to and including dismissal.

**Actionable Conduct:** These are five different types of actions that will bring sanction. They are:

1. **Illegal activity:** Violation of any local, state or country laws that prohibit the offender from performance of his or her duty.
2. **Dishonest conduct:** Seeking or obtaining unfair advantage by stealing or receiving copies of tests or intentionally preventing others from completing their work. In addition, falsifying of records to enter or complete a program will also be considered dishonest conduct.
3. **Cheating:** using someone else's ideas and not giving proper credit.
4. **Plagiarism:** using someone else's ideas and not giving proper credit.

## SUGGESTED READINGS

TITLE	AUTHOR	PUBLISHER
Marketing Research: <i>An Applied Orientation</i>	Naresh K. Malhotra & S. Dash	Pearson
Statistics for Management	Richard Levin & David S. Rubin	Pearson
Business Statistics: <i>A self-study text book</i>	Dr. PC Tulsian & Bharat Jhunjhunwala	S. Chand
<i>Business research Methods</i>	<i>Prahlad Mishra</i>	Oxford Higher education
Marketing Research	Donald S. Tull & Del I. Hawkins	PHI Pvt. Ltd., New Delhi. 6 <sup>th</sup> Ed.



Business Statistics	Levine, Khrehbiel & Berenson	Pearson Education
<i>Business Statistics</i> , 3rd Ed.	Beri G.C	TMH Publishers Ltd., New Delhi
Marketing Research	David Luck & Donald Rubin	PHI Pvt. Ltd., New Delhi.
Statistics for Business Economics	Hooda	Macmillan Publications

## DETAILED SESSION PLAN

Topics	Class	Readings	Professor
<b>MODULE 1: RESEARCH PROCESS &amp; RESEARCH DESIGN</b>			
Introduction to research Problem formulation	1	<input type="checkbox"/> <i>Social Research Methods: Alan Bryman, Oxford University Press</i> <input type="checkbox"/> <i>Research Methods for Business Students: Mark N.K. Saunders, Adrian Thornhill, Philip Lewis</i> <input type="checkbox"/> <i>Business Research Methods: William G. Zikmund</i> <input type="checkbox"/> <i>Marketing Research: An Applied Orientation: Naresh. K. Malhotra</i> <input type="checkbox"/> <i>Research methods for Management: Dr. S. Shajahan,</i> <input type="checkbox"/> <i>Business research Methods: Prahlad Mishra</i>	Dr. Krishan K Pandey
Research Design, Types of research	2	<input type="checkbox"/> <i>Research Methods for Business Students: Mark N.K. Saunders, Adrian Thornhill, Philip Lewis</i> <input type="checkbox"/> <i>Business Research Methods: William G. Zikmund</i>	Dr. Mohita Junnarkar
<b>MODULE 2: DATA COLLECTION METHODS &amp; MEASUREMENT &amp; SCALING TECHNIQUES</b>			
Methods of data collection: Primary & Secondary Data Sources Sampling Techniques	3-4	<input type="checkbox"/> <i>Business research Methods: Prahlad Mishra</i> <input type="checkbox"/> <i>Marketing Research: An Applied Orientation: Naresh.K. Malhotra</i> <input type="checkbox"/> <i>Business Statistics: G.C. Beri</i> <input type="checkbox"/> <i>Sampling and Data Analysis, Donald Tull &amp; Hawkin,</i>	Dr. Mohita Junnarkar
Measurement scaling techniques Questionnaire designing	5-6	<input type="checkbox"/> <i>Marketing Research: An Applied Orientation: Naresh.K. Malhotra</i>	Dr. Mohita Junnarkar
<b>MODULE 3: ESTIMATION AND HYPOTHESIS TESTING</b>			
Hypothesis formulation (basic concepts, Null & Alternative hypothesis, LOS, Type I & II error, Power of test, Degrees of freedom)	7-8	<input type="checkbox"/> <i>Statistics for Management, Levin &amp; Rubin.</i> <input type="checkbox"/> <i>Applied Business Statistics: Ken Black, Wiley</i>	Dr. Krishan K Pandey
Point and Interval Estimates of Means, proportions and analysis of differences.	9-10	<input type="checkbox"/> <i>Research Methodology Methods &amp; Techniques: C.R.Kothari</i> <input type="checkbox"/> <i>Business Research Methods: William G. Zikmund</i>	Dr. Krishan K Pandey
Hypothesis formulation (basic concepts); Hypothesis testing Student's t-Test– Single/double sample, Paired comparison t test	11-13	<input type="checkbox"/> <i>Business Statistics, PC Tulsian &amp; Bharat Jhunjhunwala</i> <input type="checkbox"/> <i>Statistics_ A Tool for Social Research: Joseph F. Healey</i> <input type="checkbox"/> <i>Statistics for Research: Shirley Dowdy, Stanley Weardon</i>	Dr. Krishan K Pandey



Difference of means (z test), Single sample, Two sample Difference of proportion (z and t test); single sample; Two samples, F- test , Analysis of Variance (ANOVA)	14-18	<input type="checkbox"/> Statistics for Management, Levin & Rubin. <input type="checkbox"/> Applied Business Statistics: Ken Black, Wiley <input type="checkbox"/> Research Methodology Methods & Techniques: C.R.Kotha <input type="checkbox"/> Business Research Methods:William G. Zikmund	Dr. Krishan K Pandey
Chi-square test – goodness of fit, Contingency table test	19-21	<input type="checkbox"/> Business Statistics, PC Tulsian & Bharat Jhunjhunwala <input type="checkbox"/> Statistics_ A Tool for Social Research: Joseph F. Healey <input type="checkbox"/> Statistics for Research: Shirley Dowdy, Stanley Weardon	Dr. Krishan K Pandey
<b>MODULE 4: REPORT WRITING MECHANICS</b>			
Structure and components of research reports	22-23	<input type="checkbox"/> <i>Research Methodology Concepts and cases;</i> <i>Dr Deepak Chawla &amp; Dr Neena Sondhi,</i>	Dr. Mohita Junnarkar Dr. Krishan K Pandey
<b>Total Sessions</b>	<b>23</b>	<b>One Session = 03:00 Hours</b>	