



**जननायक चन्द्रशेखर विश्वविद्यालय, बलिया-277001 (उ.प्र.)**  
**Jananayak Chandrashekhar University, Ballia-277001 (U. P.)**



## **FACULTY OF AGRICULTURE**

**Course structure and Syllabus**

**Ph. D. Course work system**

### **AGRICULTURAL ECONOMICS AND STATISTICS**

UNDER SEMESTER SYSTEM TO COME INTO  
ACADEMIC SESSION -2018-19



**Ph.D. (Doctor of Philosophy)**

**AGRICULTURAL ECONOMICS AND STATISTICS**

**FACULTY OF AGRICULRE**

**SEMESTER SYSTEM**

# **AGRICULTURAL ECONOMICS AND STATISTICS**

## **Course Structure for Ph.D. AGRICULTURAL ECONOMICS AND STATISTICS under course work system**

Agricultural economics is concerned with farming as a business and with agriculture as an industries. In the more restricted sphere of farm management the student of agricultural economics is concerned with the business problems of the firm of the producing unit of the industries. In the wider sphere of social economics he is concerned with the general economic pattern of the agricultural industry as a whole and with the forces responsible for the molding of that pattern, he is also concerned with the relation of the agricultural industry to other industries with in the national economy as well as with its place in world economy.

Agricultural economics is an applied field of science where in the principles of choice are applied to use of capital, labour, land and management resources in the farming industries. As a study of resource efficiency, it is concerned with defining the condition under which the ends or objectives of farm manager, farm families and the nation's consumers can be attained to the greatest degree.

- All the courses have been designed/redesigned/updated as per present and future needs.
- New courses have been introduced to keep pace with the latest development.
- List of Journals have been provided to keep pace with latest development in the area.
- Suggested area of research have also been added for providing directions to future researches in the area.

This program me also requires proper infrastructure, trained teachers and computers with internet connections. Industrial linkages, guest lectures, industry and farm visits will also be required to provide real life exposure.

## **Ph.D. AGRICULTURAL ECONOMICS AND STATISTICS**

### **COURSE WORK SYSTEM**

#### **COURSE STRUCTURE**

#### **SYLLABUS/Ph.D. COURSE WORK**

PAPER-P101- RESEARCH METHODOLOGY AND COMPUTER APPLICATION  
MM:100

PAPER-P102-ADVANCED PRODUCTION ECONOMICS & ECONOMIC ANALYSIS  
MM:100

PAPER-P103-ADVANCED AGRICULTURAL MARKETING, CO-OPERATION AND  
FINANCE MM: 100

SYNOPSIS SEMINAR

COURSE SEMINAR

THESIS PRE SUBMISSION SEMINAR

THESIS (DOCTORAL RESEARCH WORK)

THESIS VIVA-VOICE

### PROPOSED REGULATIONS

Semesters/Papers <b>SEMESTER I</b>	Title of the papers	Theory	
		Max. Marks	Min. Marks
Paper P101	(Theory Paper)	100	40
Paper P102	(Theory Paper)	100	40
Paper P103	(Theory Paper)	100	40
<b>Total aggregate of First Semester will be 50 %</b>			Max. Marks – 300 Min. Marks – 150
SYNOPSIS SEMINAR			Satisfactory
COURSE SEMINAR			Satisfactory
THESIS PRE-SUBMISSION SEMINAR			Satisfactory
THESIS DOCTORAL RESEARCH WORK			Satisfactory
THESIS VIVA-VOCE			Satisfactory

Note-

1. The research work may be initiated as per Ph.D. ordinance
2. The evaluation of seminar presentation, written and oral comprehensive examination shall be done by the departmental committee which shall be constituted by the Head of Department / Principal of Institution.
3. The minimum passing marks of every paper is 40 % in theory and practical separately and total aggregate of the semester is 50 % minimum.

# **SYLLABUS**

## **PAPER- P101- RESEARCH METHODOLOGY AND COMPUTER APPLICATION M.M. 100**

**(Common course for all the discipline of Agriculture faculty)**

### **UNIT I**

Importance and scope of research in agricultural. Introduction to Research Methodology: Meaning and objective of Research, Motivations in Research, Types, approaches and significance of Research, Research Methods v/s Methodology, Research and Scientific Methods, Research Process, Criteria of Good Research. Defining the Research Problem: What is Research Problem?, Selecting the Problem, Necessity of and Techniques in defining the problem

### **UNIT II**

Methods of Data Collection: Collection of Data through questionnaire and Schedules, Collection of Secondary Data, Selection of appropriate method for data collection questionnaire, successful interviewing. Survey v/s experiment. Classification and tabulation of data. Diagrammatic and Graphical representations of research results. Correlation, rank correlation, Regression analysis, partial and multiple correlation and regression, linear and nonlinear relationship. Analysis of variance, soil heterogeneity-choosing. Sampling distributions of sample mean and sample variance from Normal population, chi-Square,  $t$  and  $F$ ,  $Z$  distributions and their properties and inter relationships.

### **UNIT III**

Analysis of variance; Basic principles of design of experiments, size and shape of plots and blocks. Basic designs-completely randomized design, randomized complete block design and Latin square design. Factorial experiments, confounding. Split plot and Strip plot design; sampling in field experiments.

### **UNIT IV**

Computer: fundamental, programming language, data representation, application. Systems concepts -definitions, general characteristics; general systems theory; systems thinking, systems dynamics, systems behavior and systems study.

### **UNIT V**

Scientific Communications. Importance of publishing research papers, Publishing Research paper: (a) Preliminaries, Format, Choosing Journal, (b) Title, Running Title (c) Authors: Single and Multi authorship (d) Writing Abstract (e) Introduction section (f) Materials and Methods Section (g) Results and discussion (h) Figures: Design Principles, Legends, Table components, Graphs:Types, Style, Tables v/s Graph (i) Acknowledgements (j) References: Different Styles (k) Selecting Keywords (l) Communication with the Editor, Handling Referees' Comments, Galey Proofs 5. Writing Review Articles 6. Preparing and Delivering

of Oral and Poster Presentations 7. Avoiding Plagiarism 8. Preparing documents for MoUs, Confidentiality Agreements. 9. Standard Abbreviations and Symbols

### **Suggested Readings**

1. Agresti A. 2002. *Categorical Data Analysis*. 2nd Ed. John Wiley.
2. Arnold BC, Balakrishnan N & Nagaraja HN. 1992. *A First Course in Order Statistics*. John Wiley.
3. Huber PJ. 1981. *Robust Statistics*. John Wiley.
4. Johnson NL, Kotz S & Balakrishnan N. 2000. *Continuous Univariate Distributions*. John Wiley.
5. Marek F. 1963. *Probability Theory and Mathematical Statistics*. John Wiley.
6. Rohatgi VK & Saleh AK Md. E. 2005. *An Introduction to Probability and Statistics*. 2nd Ed. John Wiley.
7. Ed. John Wiley.
8. Chakrabarti MC. 1962. *Mathematics of Design and Analysis of Experiments*. Asia Publ. House.
9. Cochran WG & Cox DR. 1957. *Experimental Designs*. 2nd Ed. John Wiley.
10. Dean AM & Voss D. 1999. *Design and Analysis of Experiments*. Springer.
11. Dey A & Mukerjee R. 1999. *Fractional Factorial Plans*. John Wiley.
12. John JA & Quenouille MH. 1977. *Experiments: Design and Analysis*. Charles & Griffin.
13. Kempthorne, O. 1976. *Design and Analysis of Experiments*. John Wiley.
14. Khuri AI & Cornell JA. 1996. *Response Surface Designs and Analysis*. 2nd Ed. Marcel Dekker.
15. Montgomery DC. 2005. *Design and Analysis of Experiments*. John Wiley.
16. Raghavarao D. 1971. *Construction and Combinatorial Problems in Design of Experiments*. John Wiley.
17. Design Resources Server. *Indian Agricultural Statistics Research Institute (ICAR), New Delhi-110012, India*. [www.iasri.res.in/design](http://www.iasri.res.in/design).
18. Gomez, K.A. and Gomez, A.A. (1984) *Statistical Procedure for Agricultural Research*, John Wiley and Sons
19. Panse, V.G. and Sukhatme, P.V. (1985) *Statistical Methods for Agricultural Workers*, ICAR Pub.
20. Chandel, SRS 2006 *A Hand Book of Agricultural Statistics*, Achal Prakashan Mandir, Kanpur

## **PAPER-102- ADVANCED PRODUCTION ECONOMICS and ECONOMIC ANALYSIS**

**M.M. 100**

### **UNIT I**

Nature, scope and significance of agricultural production economics – relationship between production economics and farm planning – their scope in agro-economic research. Multivariable models- multiple regressions- maximum likelihood method-errors in variables, multi-co linearity, heteroscedasticity auto-correlation- remedial approaches.

### **UNIT II**

Production Function – components, assumption properties and economic interpretation, forms of production function- linear, spillman-Cobb Douglous, Quadratic, Multiplicative (Power) production functions, CES production function, conceptual & empirical issues in specification, estimation and application of production function. Production Relationships-

Factor Product(FP), Factor Factor(FF), Product Product(PP), TPP,APP, MPP and their relationship in the stages of production, analysis of optimality in production relationships, elasticity of production, resource substitution and least-cost combination, isoquant, return to scale, expansion path, product substitution and optimum combination of enterprises, Ridge line.

### **UNIT III**

Decision making with multiple inputs and outputs – Cost of production and adjustment in output prices single input and multiple product decisions – input and multi product decisions, decision making with no risk, cost curve correspondence of production, Cost and profit functions, Linear programming assumptions, Model, Essentials of Linear programming, concept of Linear programming, solution methods- graphic and Simplex method.

### **UNIT IV**

Technology input use and factor share- effect of Technology on input use – decomposition analysis- Factor share estimation – economic efficiency in agricultural production- technical, a locative and economic efficiency- measurement, Yield gap analysis- Risk and uncertainty in agriculture-incorporation of risk and uncertainty in decision making.

## **PAPER- P 103- ADVANCED AGRICULTURAL MARKETING, CO-OPERATION and FINANCE**

**M.M. 100**

### **UNIT I**

Agricultural marketing- concepts, problems, demand & supply, marketing channels, market intermediaries & market functions, estimation of marketable and marketed surplus, marketing efficiency.

### **UNIT II**

Estimation of marketing cost, marketing margins & price spread, regulated market, agricultural price fluctuations and measures taken to stabilize agricultural price, utility- farm place and time, theories of storages of , price fluctuation of analysis.

### **UNIT III**

Co-operation- meaning and concepts principles, role of co-operative in agricultural development, type of agricultural co-operative, agricultural management.

### **UNIT IV**

Finance-importance, role and problems, sources of credit, principles of credit management i.e. 3 Rs, 4 Cs, 5 Ps.

## Suggested Readings

### BOOKS

1. 'Methods of social survey & research' By- S R Bajpai, Kitab Ghar Kanpur.
2. 'Research methodology for social science' By- S P Dhandhiyal.
3. Gomez K A, Gomez A A,(1984) – Statistical Procedure for agricultural research. John Wiley & Sons.
4. Panse V G and Sukhatme P V (1985) 'Statistical Methods for Agricultural worker' ICAR publication.
5. Chandel S R S (2006) 'A Hand Book of Agricultural Statistics' Achal Prakashan Mandir, Kanpur.
6. Greene WH. 2002. Econometric Analysis. Pearson Edu.
7. Johnston J & Dinardo J. 2000. Econometric Methods. McGraw-Hill.
8. Kelejan HH & Oates WE. 2001. Introduction to Econometrics Principles and Applications. Harper & Row.
9. Maddala GS. 2002. Econometrics. McGraw Hill.
10. Chambers RG. 1988. Applied Production Analysis. Cambridge Univ. Press.
11. Gardner BL & Rauser GC. 2001. Handbook of Agricultural Economics. Vol. IA Agricultural Production. Elsevier.
12. Palanisami KP, Paramasivam & Ranganathan CR. 2002. Agricultural Production
13. Economics: Analytical Methods and Applications. Associated Publishing Co.
14. Ferris JN. 1998. Agricultural Prices and Commodity Market Analysis. McGraw-Hill.
15. Goodwin JW. 1994. Agricultural Price Analysis and Forecasting. Wiley.
16. Hallam D. 1990. Econometric Modeling of Agricultural Commodity Markets. New Routledge.
17. Martimort D. (Ed.). 1996. Agricultural Markets: Mechanisms, Failures, and Regulations. Elsevier.
18. Schrimper RA. 2001. Economics of Agricultural Markets. Pearson.
19. Timmer CP. 1986. Getting Prices Right. Cornell University Press.
20. Tomek WG & Robinson KL. 2003. Agricultural Product Prices. 4th Ed. Cornell University Press
21. Agril. Marketing, Mc Graw Hill Book Company, New Yark 1985.
22. Agril. Marketing in India, K R Kulkarni Vol. I, II & III. The Co-operators Book Depot, Mumbai
23. Indian Food Grain Marketing, Prentice and Hall India, New Delhi 1973.
24. Myths About Agrils. Marketing A/ D/ C Technical Forum No. 15 March 1972.

### List of Journals

1. Agricultural Economics Research Review
2. Agricultural Finance Review
3. Agricultural Marketing
4. Agriculture and Agro-industries Journal
5. Agriculture Statistics at a Glance
6. APEDA Trade yearbook
7. Asian Economic and Social Review (Old Series)
8. Bulletin of Agricultural Prices
9. Economic and Political Weekly
10. Economic Survey of Asia and Far East
11. FAO Commodity Review and Outlook
12. FAO Production Year book
13. FAO Trade year book
14. Indian Cooperative Review
15. Indian Economic Journal
16. Indian Journal of Agricultural Economics

17. Indian Journal of Agricultural Marketing
18. Indian Journal of Economics
19. International Food Policy Research Institute Research Report
20. Journal of Agricultural Development and Policy
21. Journal of Agricultural Economics
22. Journal of Agricultural Economics and Development
23. Journal of Farm Economics
24. Land Economics
25. Productivity
26. Reserve Bank of India Bulletin
27. Rural Economics and Management
28. World Agricultural Economics and Rural Sociology Abstracts
29. World Agricultural Production and Trade: Statistical Report
30. Yojana
31. Agricultural Situation in India
32. e- Resources
33. [www.pearsoned.com](http://www.pearsoned.com) (Pearson Education Publication)
34. [www.mcgraw-hill.com](http://www.mcgraw-hill.com) (McGraw-Hill Publishing Company)
35. [www.oup.com](http://www.oup.com) (Oxford University Press)
36. [www.emeraldinsight.com](http://www.emeraldinsight.com) (Emerald Group Publishing)
37. [www.sagepub.com](http://www.sagepub.com) (Sage publications)
38. [www.isaeindia.org](http://www.isaeindia.org) (Indian Society of Agricultural Economics)
39. [www.macmillanindia.com](http://www.macmillanindia.com) (Macmillan Publishing)
40. [www.icar.org.in](http://www.icar.org.in) (Indian Council of Agricultural Research)
41. [www.khoj.com](http://www.khoj.com) (Directory for Agricultural Economics)
42. [www.ncap.res.in](http://www.ncap.res.in) (National Centre for Agricultural Economics and Policy Research)
43. [www.ncdex.com](http://www.ncdex.com) (National Commodity & Derivatives Exchange Limited)
44. [www.phdcci.in](http://www.phdcci.in) (PHD Chamber of Commerce and Industry)
45. [www.ficci.com](http://www.ficci.com) (Federation of Indian Chambers of Commerce and Industry)
46. [www.assochem.org](http://www.assochem.org) (Associated Chambers of Commerce and Industry of India)
47. [www.apeda.com](http://www.apeda.com) (Agricultural and Processed Food Products Export Development Authority)
48. [www.mpeda.com](http://www.mpeda.com) (Marine Products Export Development Authority)

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