103 Stat Basic Mathematics

This course aims at introducing the student to the basic concepts of set theory and types of mathematical functions and counting techniques.

Contents:

Introduction - system of real numbers – complex numbers – sets – set operations – finite and countable sets – product sets – classes of sets – concept of mathematical functions and application in economics and social sciences – types of mathematical functions – linear and nonlinear function – techniques of counting; permutations and combination.

Reference:

1- هوارد انتورث وبرنارد كوتن (1987) ـ الرياضيات وتطبيقاتها في العلوم الإدارية والاجتماعية ـ إعداد وتعريب الدكتور هادى مجيد حداد والدكتور محمد بركات قنديل ـ دار المريخ للنشر.

104 Stat Descriptive Statistics:

The course aims at introducing the student to the fundamentals of statistics.

Contents:

Types of data - frequency tables – charts - measurements of central tendency - measurements of dispersion – measurement skewness and kurtosis – introduction to probability.

References:

مورى اسبيجيل (1990) - الإحصاء ـ سلسلة شوم ـ الدار الدولية للنشر والتوزيع – القاهرة ـ مصر.

106 Stat Calculus

This course is mainly concerned with introducing the student to the basic concepts of calculus and their use in the field of economic and social sciences.

Contents:

Limits – continuity – derivatives – derivatives of algebraic functions – rules of differentiation application of differentiation – integration – rules of integration – improper integration – progression and series (Mac Lauren's and Taylor series) – total differential – total derivative.

Reference:

Frank Ayres "Calculus", Schaums Outline Series, Mac Graw Hill.

203 Stat Introduction to Inferential Statistics

The course aims at providing the students with the basic concepts of the statistical inference namely problems of estimation and testing hypothesis.

Contents:

Introduction to the probability theory – sampling theory – sampling distribution - probability distributions - principle of the estimation theory - testing hypothesis - testing sample mean against population mean – testing sample proportion - using large samples Z-test, and small sample t-test.

References:

موری اسبیجیل (1990) . الإحصاء . سلسلة شوم . الدار الدولية للنشر والتوزيع – القاهرة – مصر .

205 Stat Fundamentals of Linear Algebra

This course aims at introducing the student to the basic concepts of linear algebra and their application in the field of economic and social sciences.

Contents:

Vectors – mathematical operation of vectors – matrices – mathematical operation of matrices – determinants – transpose – inverse of matrices – use of matrices in the solution of the simultaneous equations model – characteristic equations – quadratic forms – Jacobian determinant – Hussein determinant.

Reference:

1- Alpha Chaing, "Fundamental Methods in Mathematical Economics", Mac Graw Hill , Publishing Company.

1- Glass (1980), An Introdction to Mathematical Methods in

Economics. McGraw-Hill.

214 Stat Optimization

This course is intended to introduce the student to some basic mathematical concepts and how to use them to obtain the optimal values of mathematical functions and to apply them in the field of economic and social science.

Contents:

Optimization of single variable function, optimization of multiple variable function, constrained optimization.

Reference:

1- Alpha Chaing, "Fundamental methods in mathematical economics", Mac Grow Hill, Publishing Company.

2- Glass, Introduction to Mathematical Economic.

305 Stat Numerical Methods and Data Processing

The objective of this course is to provide students with the basic principles and concepts of the numerical methods and data processing.

Contents:

Concepts of numerical analysis - principles of data bases - information attributes - manual and electronic data processing - distributed data systems - distributed data base - creating and designing tables - creating and designing forms - creating and designing

queries - creating and designing reports - building relationships in tables - creating and running macros - creating and running modules.

References

1ـ محمد السعيد خشبه (1987) - "نظم المعلومات – المفاهيم والتكنولوجيا" - القاهرة.

2ـShelly, Cashman (1995)– Introductory Concepts and Techniques – Boyd &Fraser Publishing Company, USA.

306 Stat Introduction to Actuarial Statistics

This course aims at familiarizing the student with actuarial statistics and their application.

Contents:

Introduction to stochastic processes - insurance calculation - application of probability for calculating premium in insurance probability of death – ruin – accident - illness, ...etc - calculation of insurance cost and demands, health insurance, etc.

References:

Browers, Gerber, et al, 1997, Actuarial Mathematics , 2nd edition, Publishers: Mad Rivew Books.

307 Stat Research Methodology

This course is mainly concerned with providing the student with the required skills in order to carry out sound scientific research.

Contents:

Definition of scientific research – field of research – research problem – hypotheses – data collection: primary & secondary data – questionnaire – type of sample – sample size – sample selection of units – data analysis. : tabulation – charts – cross-tabulation – measuring of association for nominal & ordinal data – statistical analysis methods – ANOVA – Z-test – t-test – applications of statistical analysis through computer.

References:

1- Kirk, Jerome and Marc L. Miller,(1986) Reliability and Validity in Qualitative Research,.

2- Bogdan, Robert C. and Sari Knopp Biklen (1992) Qualitative Research for Education: an introduction to theory and methods, Boston: Allyn and Bacon.

308 Sta. Statistics for Economists

This course is intended to introduce students and familiarize them with some basic statistical concepts and measurements that are essential for economists to understand the theoretical underpinnings of econometric techniques. At the end of this course students should be able to: perform effectively economic data description, understand the essential concepts of probability distributions, understand the underlying assumptions of normal probability distribution as well as detecting and dealing with their violation, be familiar

with methods of sampling that are used for economic modeling and forecasting.

Content:

Introduction :the use of quantitative methods in economics .Economic data presentation :exploring data with frequency distributions, exploring data with graphical methods ..Discrete probability distributions: concept of discrete random variables, the expected value of random variable, variance of random variable, and standard deviation of random variable. Normal probability distribution: concept of continuous random variables, characteristics of normal probability distribution, and violation of the normality assumptions (skewness, outliers, kurtosis measurements). Sampling distribution and confidence intervals: point estimation, the sample mean as an unbiased point estimator, confidence intervals for the mean, determining the required sample size.

References:

(1)Leonard J . Kazmier , Basic statistics for Business and Economics , McG raw Hill.

(2) سيمور ليبشتز ، نظريات ومسائل في الاحتمالات ، سلسلة ملخصات شوم .

(3) م. ر . شبيجل ، الإحصاء ، سلسلة ملخصات شوم .

310 Stat Linear Programming

This course aims at introducing students to the different techniques of operation research and their importance in decision making .

Contents:

Linear programming - solution of linear programming (algebraic and graphic) - duality problem - transportation and assignment problems.

References:

1–حمدى طه (1992) . مقدمة في بحوث العمليات . كولير ماكميلان . لندن.

2–محمد الطراونه و سليمان عبيدات . مقدمة في بحوث العمليات . كلية الاقتصاد والعلوم الادارية . الجامعة الأردنية.

3–سلسلة ملخصات شوم . بحوث العمليات برونسون . دار ماكجر وهيل للنشر . الدار الدولية للنشر والتوزيع.

311 Stat Principal of Statistical Theory

This course aims at introducing students to the basic methods of theory of statistics and their applications.

Contents:

Probability - random variables - probability function for one variable – probability function for two variables – marginal and conditional probability functions - mathematical expectations – low of large number.

Reference:

1ـ د. أرباب إسماعيل بابكر (2000) ـ مبادئ الاحتمالات.

2ـ الدكتور/ أحمد عودة (1991) ـ مقدمة في النظرية الإحصائية .

3- Alexander, M. Mood (1974), Introduction to the theory of statistics.

4- Spiegel M., (1975) - Probability and statistics.

312 Stat Applied Regression Analysis

The objective of this course is to introduce the student to the basic concepts of regression analysis and its applications on socio-economic research.

Contents:

Concepts of applied regression analysis - importance of applied regression - multiple regression analysis - linear Model - coefficient of determination - partial correlation coefficient - model specifications - double Log function - log-lin function - inverse function - quadratic function - Cobb-Douglas function - cost function.

References:

1ـ دومينيك سالفاتور (1982) " الإحصاء والاقتصاد القياسي " دار ماكجروهيل للنشر.

1- N.P.Draper, H.Smith (1981)"Applied Regression Analysis" John Wiley & Sons., 2nd edition edition

313 Stat Numerical Computation

This course aims at introducing students to the numerical computation methods and its economical and statistical applications.

Contents:

Gauss Method, LU. Factors for square matrices, Application of the LU-factors in: sawing linear systems-finding the inverse finding the determinant, Elementary orthogonal matinees; Householder matinees, Given's matinees, OR-factors, Application of the OR-factors in sowing the different types of equations, Eigenralees, the study of some methods for Eigenralees: Jacob's method, OR-method, Power method.

Reference:

1-Edward T. Doweling , Mathematics for Economists (1980), Schaums Outline Series, Mc Graw Hill- Inc.

2- Margrat L. Lial, Lhailcs D. Miller and Thomas w. Hungciford, Mathematics with Applications in The Management, Natural and Social Science (1991), Haiper Collins Publishers.

314 Stat Probability distribution & Moments

This course aims at introducing students to the different probability distributions and the basic moments that characterize those distributions.

Contents:

Discreet probability distributions - Continuos probability distributions - Moments, and moment generating functions - Law of large numbers

References:

1ــ د. أرباب إسماعيل بابكر (2000) مبادئ الاحتمالات .
2ــ الدكتور/ أحمد عودة (1991) مقدمة في النظرية الإحصائية.
3- Alexander, M. Mood (1974), Introduction to the theory of statistics.
4- Spiegel M. (1975), Probability and statistics.

315 Stat Population Statistics

The term, population statistics, refers to statistics or statistical data on human populations. This course is considered as an introductory course attempts to cover major basic topics of importance in this field (Sources of population statistics, basic concepts, definitions, and measures).

Contents:

Introduction, Basic Sources of population statistics, Analytical Appraisal of Population Data, Population Characteristics, Basic Demographic Measures (Fertility, Mortality, Nuptiality, Migration) and Estimaies and Projections of Population.

References:

1- احمد حمد النورى واخرين (1994) "اساليب التحليل الديمةغرافى" مطبعة جامعة الخرطوم.
2- طه حمادى الحديثي (1988) "جغرافية السكان" مديرية دار الكتب للطباعة والنشر – العراق.
3- H.S.Shryock,J.S.Siegel and Associates (1976), "The Methods and Materials of Demography",Condensed Edition by E.G.Stockwell, Academic Press, Inc.
4- Joseph A. McFalls, Jr. (1998),"Population:A Lively Introduction", A publication of the Population Reference Bureau.

316 Sta: Introduction to Differential Equations

This course aims at introducing students to the mathematical functions, the derivatives and their application in economic and statistics.

Contents:

First order equations: separation of variables, homogeneous equations, linear equations, higher order equations, application on economical and statistical models.

Reference:

Edward T. Dowling , Mathematics for Economists (1980), Schaums Outline Series, Mc Graw Hill- Inc.

406 Stat Statistics & Econometrics Packages

The main objective of this course is to promote the analytical capabilities of the students through training them how to use the statistical and econometric packages for data analysis.

Contents:

Schools of Data Analysis - Classical versus Modern School - Exploratory Data Analysis - Fragility Analysis - Data coding - Data entry and transformation - Descriptive analysis procedure - Comparing means (one sample t-test, independent sample, pair sample t-test) - Comparison involving more than two samples (one- way and two-way ANOVA) - Regression and correlation analysis - Reliability test - E-views Package: Defining variables and data entry - Problems of multiple regression - Simultaneous equations

References:

1- Spss Corporation (1999) " SPSS Manual Guide" USA.
2 - E-Views (1998) "Econometrics Views Manual Guide " London.

407 Stat Methods of Demographic Analysis

Demographic analysis is a form of statistical analysis which employs mathematical and statistical techniques to deal with demographic data and it plays a central role in any population research. The course cover the basic principles and techniques of demographic analysis and will enable students to acquire the necessary skills of population research methodology.

Contents:

Mortality and Life-Table Analysis , Fertility and Reproductivty Analysis, Indirect Estimation Techniques (for estimating mortality and fertility), Analysis of models Demographic time series , Life Course and Event History analysis, Population Model, Demographic Computer Packages.

Reference:-

1- A. H. Pollard, F. Yusuf, G.N. Pollard (1990), "Demographic Techniques".
2- UNFPA (1993), "Readings in Population Research Methodology", U.N.

3- S.A. Preston, P. Heuveline and M. Guillot (2001) "Demography: Measuring and Modeling Population Processes", Blackwell Publisher Ltd.

408 Stat Applied Statistics (2)

This course introduces students to the methods and philosophy of modern statistical data analysis and its application.

Contents:

Time series – Education statistics – Foreign trade statistics – Health statistics – Agriculture statistics – Labour statistics.

References:

1- John Neter (1992) Applied Statistics.

2- Sidney Siegel, N. John Castellan, Nonparametric Statistics for the Behavioral Sciences, 2nd edition, McGraw Hill

409 Stat Theory of Econometrics (1)

This course aims at introducing students how to measure the economic relations given empirical Contents to the theory of economics that helps to make structural analysis, to evaluate economic policies and to make future forecast.

Contents:

Nature, scope and objective of econometrics – Simple linear model – General linear model – Multicollinearity – Specification Error – Generalized Least Square.

References:

د. عبد المحمود محمد عبد الرحمن (1995) – مقدمة في طرق الاقتصاد القياسي– مطابع جامعة الملك سعود – المملكة العربية السعودية.

410 Stat Introduction of Mathematical Statistics

This course aims at introducing students to rules, concepts and theorems of statistical theory in a gradual and comprehensive way and how to use them in practice.

Contents:

Estimation theory - estimation methods – estimation properties – hypotheses test.

References:

1- د. شيمون ليبشستز، الاحتمالات ، سلسلة ملخصات شـوم.

2- Hoel G. (1963), Introduction to Mathematical Statistics, Paul.

3- Alexander, M. Mood (1974) Introduction to the theory of statistics.

411 Stat Applied Statistics (1)

This course aims at introducing students to the different methods of statistical data analysis and inference, with special emphasis on application in real life.

Contents:

Sampling techniques (random sample – simple random sampling, stratified ,cluster and systematic) – analysis of variance – Index Number – introduction to non-parametric test.

References:

ـ دار العلم للملايين . Basic1ـ الدكتور عبد الرحمن شربجي (1987)الإحصاء الوصفي مع برامج كمبيوتر بلغة

2- Cowden and Grextan, Applied General Statistics.

3- John Neter (1992), Applied Statistics.

412 Stat Theory of Econometrics (2)

This course is a continuation to Econometrics (1) it serves the same aim.

Contents:

Dummy variables – Heteroscedasticity – Autocorrelation – Simultaneous Equation Model: Identification – Estimation.

References:

د. عبد المحمود محمد عبد الرحمن (1995) ـ مقدمة في طرق الاقتصاد القياسي ـ مطابع جامعة الملك سعود – المملكة العربية السعودية.

413 Stat Introduction of Operations Research (O.R.)

The objective of this course is to train the student how to use operation research methods in order to take the optimum decision.

Contents:

Sensitivity analysis (1), Decision -making strategies, Inventory Models and Stock Control.

References:

- محمد محمد مكعبور(1992) ـ أساسيات بحوث العمليات ـ كلية المحاسبة زغربان- ليبيا.1

2- Hamdy A. Taha (1992), Operations Research – An Introduction, Collier Macmillan Publishers, London.

3-Richard, E. trueman, Quantitative Methods for Decisions Making in Business, The Dryden press.

414 Stat Socio-Economic Indicators

This course aims at introducing the student how to use economic and social indicators and how to derive them.

Contents:

Population, economic, social and health indicators, measurement of N.I, GDP per capita Income, inflation, population growth using arithmetical and geometrical progressions, sex ratio, birth and death rates, total fertility rate, reproductive rate, iltetiraces rate, school enrollment ratio, property, human development index HDI, use of χ^2 to measure association in nominal and ordinal data.

References:

1- Tule, and Kendall, Introduction to the Theory of Statistics.

2- United Nation Publications.

415 Stat Quantitative Methods

The objective of this course is to provide the student with the skills of quantitative methods and their application in decision making.

Contents:

Concept of the quantitative methods – importance of the quantitative methods – decision theory – Payoff- matrix – decision models in cases of certainty – risk and uncertainty – criterion of optimism – Hurwiczs criterion – criterion of pessimism – criterion of Regent – Laplace criterion – quality control principles.

References:

1- سرور على إبراهيم سرور (1995) " الرقابة على الجودة " ، ترجمة عن بستر فيلد ،المكتبة الأكاديمية ، مطابع المكتب المصري الحديث.

2- د/جلال مصطفى الصياد (1993) " الاستدلال الإحصائي " ، دار المريخ.

416 Stat Sampling

The course aims at providing the students with the basic concept of the sampling, how to design a sample and sample selection.

Contents:

Sample Vs population – types of samples – simple Random sample – systematic sample – stratified sample – cluster sample – multi-stage sample – Sample size – sample selection – techniques of sample analysis – methods of measuring mean – variance – standard error of each type of sample and application of theory of estimation and testing hypothesis.

References:

1- Cochran: Sampling Techniques.

2- Deming, Some Theory of Sampling.

3- Hansen, Hurwits & Madaw, Sampling Survey Methods & Theory, volume 1.

417 Sta: Principles of Econometrics I

This course is intended to introduce students to the basic econometric concepts, techniques and econometric research methodology as well as to enable students to apply these techniques for economic theory testing and evaluation.

Contents:

Introduction :definition of econometrics - aims of econometrics - division of econometrics - economic models and econometric models - methodology of econometrics .The Simple Linear Regression Model: definition of the simple regression model - assumptions of the classical linear regression model - ordinary least-squares method (OLS) - estimation of the simple regression model - properties of OLS estimators. Simple regression diagnostics: results interpretation - test of significance

(statistical inference) - analysis of variance - testing overall significance of the simple regression model. Economic forecasting with simple regression model: short-run economic forecasting - long run forecasting. Economic application with simple linear regression model: keynesian consumption function - Harrod-Domar growth model.

References

1. سمير محمد عبد العزيز ، " الاقتصاد القياسي ، مدخل في اتخاذ القرارات " (1997) الاسكندرية – مصر .
2. عبد المحمود محمد عبد الرحمن " مقدمة في الاقتصاد القياسي " الرياض .
3. مجدي الشوربجي ، " الاقتصاد القياسي النظرية والتطبيق " (1992) جامعة حلوان – مصر .
4. محمد خليل برعي ، " مقدمة في الاقتصاد القياسي " (1991) جامعة القاهرة – مصر .
5. Johnston J. 1984 "Econometric Methods - " New York.
6. Koutsoannis A. (1979) Theory of Econometrics" Macmillian.
7. Domodar N. Gujarati (1995) "Basic Econometrics" McGraw-Hill

418 Sta. Principles of Econometrics II

This course is intended to turn students to introduce and apply some basic econometric techniques, which allow economic theory to be tested and evaluated.

Contents:

Multiple regression analysis :estimation of the multiple regression model - statistical properties of multiple regression estimators - Interpretation of multiple regression estimators. Multiple regression diagnostics: test of significance (statistical inference) - analysis of variance - testing overall significance of the multiple regression model - testing of linear restrictions - testing for parameters stability (Chow test) - partial regression and partial correlation. Economic Prediction with multiple regression model: short-run economic forecasting - long run forecasting. Misspecification in multiple regression model: including irrelevant variables in a regression model - omitted relevant variables bias. Economic applications with multiple regression model: demand functions - production functions - costs functions - single-equation models.

References

1. سمير محمد عبد العزيز ، " الاقتصاد القياسي ، مدخل في اتخاذ القرارات " (1997) الاسكندرية – مصر .
2. عبد المحمود محمد عبد الرحمن " مقدمة في الاقتصاد القياسي " الرياض .
3. مجدي الشوربجي ، " الاقتصاد القياسي النظرية والتطبيق " (1992) جامعة حلوان – مصر .
4. محمد خليل برعي ، " مقدمة في الاقتصاد القياسي " (1991) جامعة القاهرة – مصر .
5. Johnston J. 1984 "Econometric Methods" - New York.
6. Koutsoannis A. (1979) Theory of Econometrics" Macmillian.
7. Domodar N. Gujarati (1995) "Basic Econometrics" McGraw-Hill

501 Stat Experiment Design & Analysis

The course aims at introducing the student to experiments and the different statistical methods used to conduct their design and analysis.

Contents:

Definition of experimental design – principal of experimental design – the completely randomize design (CRD) – the randomized complete block design (RCBD) – double grouping: Latin Square (LS) – factorial experiments.

References:

ـ تصميم التجارب وتحليلها – دار الكتب الجامعية – القاهرة – جمهورية مصر العربية. 1- احمد عبادة سرحان (1983)

2- د. محمد محمد الطاهر الامام (1994) ـ تصميم وتحليل التجارب – دار المريخ للنشر ، الرياض ، المملكة العربية السعودية.

3- محمد على بشير ومحمد ممدوح الروبي (1981) – مقدمة في طرق الاحصاء وتصميم التجارب – دار المطبوعات الجديدة – جمهورية مصر العربية.

502 Stat Inference and Measures of Association

The course aims at providing the students with the basic concepts of inference and measures of association, and how to use them in practice.

Contents:

Introduction – measure of association for nominal data - measure of association for ordinal data – measures of agreement – measure of reliability and validity – variance test – t-test.

References:

1- Siegl S & Castellan (1988), Nonparametric Statistics for The Behavioral Sciences, 2nd edition, McGraw-Hill, New York.

2- Breslow NE &Duy NE (1980) The Analysis of Case-control Studies, IARC Scientific Publications No. 32 Lyon France.

503 Stat Operation Research (1)

The objective of this course is to acquaint the student with the techniques of Operations Research and its application.

Contents:

Topics in linear programming (Matrix definition of the standard linear programming problems, Revised simplex method and Dual simplex method) –sensitivity Analysis (2) – Integer Programming **(**The general form of integer programming and Methods of integer programming solution) – introduction to simulation.

References:

1- Hamdy A. Taha (1992) Operations Research – An Introduction, Collier Macmillan Publishers, London.

2-Richard, E. trueman, Quantitative Methods for Decisions Making in Business, The Dryden press.

- محمد محمد مكعبور، أساسيات بحوث العمليات – (1992) -كلية المحاسبة زغربان - ليبيا.3

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504 Stat Operation Research (2)

The course aims at familiarizing the student with the application of Operation Research models in real life and the use of this model for project evaluation and follow-up.

Contents:

Network Analysis(maximum flow, short route, critical path method, (CPM), project evaluation and review techniques (PERT)) - The Queuing Theory - Dynamic Programming.

References:

1- Hamdy A. Taha (1992) Operations Research – An Introduction, Collier Macmillan Publishers, London.

2-Richard, E. trueman, Quantitative Methods for Decisions Making in Business, The Dryden press.

3- محمد محمد مكعبور(1992) ، أساسيات بحوث العمليات –-كلية المحاسبة زغربان - ليبيا.

505 Stat Applied Econometrics (1)

This course aims at familiarizing the student with the different types and sources of data and how to manipulate them.

Contents:

Types of economic data – sources of economic data – data manipulation methods – measuring growth – economic applications of growth rates – measuring the size of a variable – functional forms for equation specification – specifications that are nonlinear in the explanatory variables – the semilog specification – econometrics concepts.

References:

Leonardo Lardoro (1993), Applied Econometrics, Harber Colin.

506 Stat Applied Econometrics (2)

This course intends to discuss the problems of formulation and empirical testing of economic functions.

Contents:

Consumption function – production function – investment function – application of simultaneous equations model.

References:

1- D.G. Mayes, " Applied Econometrics", Mac Millan.

2- Kenneth Wallis "Topics in Applied Econometrics", Fray-Mills publishing company.

507 Stat Non-Parametric Statistics

The main objective of this course is to introduce students to the main concepts and uses of non-parametric statistics for hypotheses testing and decision making.

Contents:

Concepts of Non-Parametric Statistics - Tests concerning one sample -Tests concerning two independent samples - Tests concerning pair samples -Test concerning multiple samples

References:

1- صلاح الدين محمود علام (1993) ـ الاساليب الإحصائية الاستدلالية البارامترية واللابرامترية في تحليل البحوث النفسية والتربوية ـ دار الفكر العربي ـ القاهرة.

2- Sidney Siegel, N. John Castellan (1988), Nonparametric Statistics for the Behavioral Sciences, 2nd edition, McGraw Hill.

508 Stat Multivariate Analysis

This course aims at providing the student with the techniques of the multivariate analysis.

Contents:

Introduction – multi-normal distribution – principal component analysis – factorial analysis.

References:

1ـ ريتشارد جونسون ودين وشرن ـ التحليل الإحصائي للمتغيرات المتعددة من الوجهة التطبيقية ـ تعريب عبد المرضى حامد عزام ـ دار المريخ.

2- Child ,D. (1967) The Essential of Factor Analysis, University of Chicago Press.

3- Anderson, T. W. (1984), An Introduction To Multivariate Statistical Analysis, 2nd addition, John Wiley & Sons, inc.

509 Stat Mathematical Statistics

The course aims at providing the students with the theories and concepts of mathematical

statistics and their mathematical derivations.

Contents:

Advanced probability theory – discrete probability distributions: Geometric – Hypergeometric – Binomial – Poisson. Continuous distributions: normal – Gamma – Exponential – chi-square – F,t,… – methods of estimation of parameters mean and variance .

References:

1-Hogg , R. V. and Criag, A. T.(1978), Introduction to Mathematical Statistics, Collier Macmillan Publisher.

2-Mood, A. M.; Graybill ,F. A. and Boes, D. C. (1974), Introduction to The Theory of Statistics, McGraw . Hill.

510 Stat Introduction of Stochastic Processes

This course aims at introducing the student to the basic concept of the stochastic processes and its application.

Contents:

Definition and examples of stochastic processes – Markov processes – random walk theory – absorbing barriers – Markov chains in discrete state and continuous time – Poisson process – theory of equilibrium – birth and death processes.

References:

1- Cox, D. R. & H.D Miller (1984), The Theory of Stochastic Processes, London, New York, Chapman & Hall, 2nd edition, John Wiley & Sons, inc.

511 Stat. Population & Development

The course will help the students to understand the interplay between demography and economics. It examines the different analytic approaches to the main interrelationships between population and socioeconomic development.

Contents

1- Population & Development concepts and their interrelationships.
2- Population & Economic Development:(Environment and Poverty Linkages, Natural resources, Food security, Sectoral development, Labor market, Production & Consumption, Aggregate Savings & Investment).
3- Population & Social Development (Health, Education, Gender Issues, Social welfare).
4- Population Mobility & regional Development (Urbanization, Refugees & Displacement problems, Regional development).
5- Population & Development Programs (PDS, ICPD, ICPD+5, MDGs).
6- Sudan Population &Development Policies.

References:

1- R.H. Cassen Ed. (1994) "Population & Development: Old Debates, New Conclusion", Overseas Development Council, Washington DC.
2- World Bank (1985) "Population Change and Economic Development", Washington DC.
3- C.A. Hazeu and G.A.B. Frinking ed. (1990). "Emerging Issues in Demographic Research ", Elsevier Science Publishers B.V.
4- UNFPA (2001-2000), "Population and Development Strategies" Technical publication series.

512 Stat. Population Policies:

This course examines the evolution of population policies and programmes at both the international and national levels. It is thus concerned with the role of internal and external forces in shaping population policies and programmes.

Contents

1. Definition of population Policy.
2. Evolution of Population Problems and Polices
3. Considerations in Population Policy Formulation.
4. Integration of Population and Development Polices.
5. The Role of UN & other International Agencies.
1. Examples of some Population Policies and Progammes.
2. Sudan national Population Policy.

1- طه حمادي الحديثي (1988) "جغرافية السكان – الفصل الخامس: السياسات السكانية" ، مديرية دار الكتب للطباعة والنشر – العراق.

2- L.A. Mazur ed. (1994), "Beyond the Numbers", Island Press, Washington DC.

3- Helen Ginn Daugherty and Kenneth C.W.Kammeyer (1995), "Introduction to Population " 2nd ed ., The Guilford Press.

513 Sta. Econometrics I

The main aim of this course is to introduce students to the underpinnings theoretical econometric techniques and to enable students to apply various modern tools of these techniques for testing economic theory and conducting quantitative economic researches .

Contents:

Review of The general linear model. Lagged variable models: categories of lagged variable models - estimation of lagged variable models. Nonlinear models: categories of nonlinear models - estimation of nonlinear models. Violation of the general linear model assumptions: multicolinearity (definition, consequences and detection of multicolinearity and remedies for it) - heteroscedasticity (definition, consequences, detection and solutions of heteroscedasticity), utocorrelation (definition, consequences, detection and dealing with autocorrelation). Economic applications: consumption function - Cobb-Douglas function - import demand function - general price function.

References

1. سمير محمد عبد العزيز ، " الاقتصاد القياسي ، مدخل في اتخاذ القرارات " (1997) الاسكندرية – مصر .
2. عبد المحمود محمد عبد الرحمن " مقدمة في الاقتصاد القياسي " الرياض .
3. مجدي الشوربجي ، " الاقتصاد القياسي النظرية والتطبيق " (1992) جامعة حلوان – مصر .

4. محمد خليل برعي ، " مقدمة في الاقتصاد القياسي " (1991) جامعة القاهرة – مصر .
5- Johnston J. 1984 "Econometric Methods - " New York
6- Koutsoannis A. (1979) Theory of Econometrics" Macmillian
7- Domodar N. Gujarati (1995) "Basic Econometrics" McGraw-Hill

518 Sta. Econometrics II

The main aim of this course is to introduce students to the underpinnings theoretical econometric techniques and to enable students to apply various modern tools of these techniques for testing economic theory and conducting quantitative economic researches.

Contents:

Regression on categorical variables :the use of dummy variables, linear regression on dummy variables .Simultaneous-equation models :simultaneous dependent of economic variables, simultaneous-equation bias, identification problem, simultaneous-equation estimation methods (indirect least squares, instrumental variable method and the two-stage least squares, three-stage least squares method). Regression analysis with time-series data: least-squares estimation and spurious regression, testing stationarity time-series data (Autocorrelation function test, unit root test, Dickey-Fuller test, augmented Dickey-Fuller test), dealing with non-stationarity time-series data. Cointegration and the error correction model: Cointegration (definition, consequences, detection and dealing with cointegration), the error correction model, interpretation of the error correction estimators. economic applications: demand-supply model - Keynesian model for income - macroeconomic model.

References

1) سمير محمد عبد العزيز ، " الاقتصاد القياسي ، مدخل في اتخاذ القرارات " (1997) الاسكندرية – مصر .
2) عبد المحمود محمد عبد الرحمن " مقدمة في الاقتصاد القياسي " الرياض .
3) مجدي الشوربجي ، " الاقتصاد القياسي النظرية والتطبيق " (1992) جامعة حلوان – مصر .
4) محمد خليل برعي ، " مقدمة في الاقتصاد القياسي " (1991) جامعة القاهرة – مصر .
5- Johnston J. 1984 "Econometric Methods - " New York
6- Koutsoannis A. (1979) Theory of Econometrics" Macmillian
7- Domodar N. Gujarati (1995) "Basic Econometrics" McGraw-Hill