tutor ID: 32066

city: 3181 Melbourne, Australia

Online option:

Ich bevorzuge Unterricht vor Ort, aber schließe Onlineunterricht nicht aus.

Subject:

Mathematics, Statistics

qualification:

B.E. in Information Technology,Postgraduate Diploma in SCIENCE (Statistics) Honours Equivalent (expected–July 2010),Master of Statistical Science (expected –July 2011)
+

level:

Undergaduate

details:

Relevant Units covered in Undergraduate Studies.• Applied Mathematics-1(Complex Variables, Vector Algebra, Calculus Taylors theorem, expansion of
functions
in power series, partial derivatives of first and higher orders, total differentiation concept of commutative partial derivatives, Eulers theorems of homogeneous functions, deduction from Euler's theorems ,errors, approximations, maxima and minima functions of two
variables.)
• Applied Mathematics-2(Exact differential Equations, Linear equations & reducible to linear (Bernoulli equations), Linear Diff. Eqn. of nth order with constant coefficients, complimentary function & particular integral when the function of
the
integral on the R.H.S. are exponential, Sin(ax + b), Cos(ax + b).Cauchys Linear equation(Homogenous eqn.). The Legendre Linear equation, Variation of parameters & method of undetermined coefficients. Elementary application of above diff. Eqn. in solving engineering problems from Electrical Engg., Chemical Engg., Mechanical Engg., and Civil Engg. Integral Calculus: Rectification of plane curves, Double and Triple integrals, Their geometrical interpretation &

evaluation. Evaluation of double integrals by change of order and change to polar. Application of double and triple integrals to areas, volumes & mass. Beta & Gamma
Functions.)

• Applied Mathematics 3(Fourier Series and Integrals: Orthogonal and orthonormal functions, expression of a function in a series of orthogonal functions,s ine and cosine functions and their orthogonality properties. Fourier series, Drichlet conditions, periodic functions, even and odd functions, half range sine and cosine series, Parseval's relation. Complex form of Fourier series, introduction to Fourier integral, relation with Laplace transform. Laplace Transforms: Function of bounded variable (statement only), Laplace transforms of 1, at, exp(at), sin(at), cos(at),sinh(at), cosh(at), erf(t), shifting properties, expressions with proofs for L { t f(t) }, L { f(t)/t }, Laplace of an integral and
derivative)

• Applied Mathematics 4(Complex Variables: Regions and paths in the Z plane. Path/Line integral of a function. Inequality conditions for a path integral to be independent of the path joining two points. Contour Integral, Cauchy's theorem for analytical functions with continuous derivatives. Matrices: Brief revision of vectors over real field, inner product, normal, linear independence, orthogonality. Characteristic values and vectors, and their properties for Hermitian and real Symmetric matrices. Vector Calculus: Scalar and Vector point functions, directional derivative, level surfaces, gradient, surface and volume integrals, definition of curl, divergence. Use of operator. Conservative, irrotational, solenoidal fields. Green's theorem for plane regions and properties of line integral in a
plane.)

• Applied Mathematics 5(Probability and topics in Statistics: Statistical experiments with random outcomes, Sample space, probability defined on the basis of sample space and on the basis of events and their combinations. Theorem on probabilities, conditional probability. Bayes theorem. Random variable, probability distribution for discrete and continuous random variables. Density function and distribution functions. Expected values, variance , moments, moment generating functions, Bernoulli's trials, Binomial , Poisson, normal distributions for detailed study with proof, Other common distributions, T , F, Beta, Gamma, X with indication of the applications, Central limit theorem, Bivariate probability and frequency distributions, Correlations, regression, lines of regression. Introduction to random samples, use of random numbers, stochastic processes, Time series , queuing theory. Optimization Techniques- Problem formulation, Simplex Method, Revised Simplex Method, Duality & Sensitivity. Unconstrained optimization of several variables• Numerical methods for unconstrained optimisation : Random search & Univariate method, Fletcher Reverse method, Newtons
method.)
• Discrete Mathematics (Logic : Propositions and logical operations, Truth tables, Equivalence and implication, Laws of logic, Mathematical induction and quantifiers. Set theory : Method of proof for set, Venn diagram, set membership tables, definitions, Laws of set theory, Partition of sets. Permutations, combinations and discrete probability. Introduction to permutations and combinations, Generation of permutation and combination, Discrete probability, Conditional probability. Relations and diagraphs., Paths and the relations and diagraphs, Properties of relations, Equivalence relations, Computer representation of relations and diagraphs, Manipulation of

relations, Transitive closure, Warshall’s algorithm.Function and pigeon hole principle Definition, Types of functions: injective, surjective, bijective, Composition, identity and inverse, Pigeon hole principle.Graphs , Posets, Hasse Diagram, Lattices, Finite Boolean Algebra, Groups & their Applications Introduction to Rings &
Fields.)

Units covered in Postgraduate Studies.
• Advance Financial Mathematics (Access Grid Room -University of Wollongong): Brownian motion, Black-Scholes equation for pricing Digital options and Power options, Reflection principle and barrier options, Pricing options using Monte Carlo Simulations, Monte Carlo estimation methods for hedge ratio, Finite-difference methods for Vanilla options and Asian Options, C++
Programming.
• Financial Econometrics 2 (Monash University):Modeling asset return volatility, volatility modeling for measuring risk and pricing derivatives, continuous time stochastic Processes for pricing financial Derivatives, High Frequency data Analysis, Generalized Method of Moments in Financial
Models.
• COMPUTATION IN Stochastics (Monash University): Stochastic differential equations, Taylor expansion of stochastic differential equations, Evaluation of option values. European option. American option, Optimization methods using
C++.
• STOCHASTIC CALCULUS AND MATHEMATICAL FINANCE (Dr. Fima Klebaner- Monash University): Ito integrals and Ito’s formula. Stochastic Differential Equations and Diffusions, Calculation of expectations and PDE’s, Feynman-Kac formula. Martingales and Semi martingales. Change of Probability Measure and Girsanov Theorem. Fundamental Theorems of Asset Pricing. Change of Numeraire. Application to
options.
• Stochastic Processes II - Random Walks & Markov Chains (Monash University): Simple Random Walks Discrete-time martingales. Markov chains, both continuous and discrete
time.
• Applied Statistics: Sample Survey, Clustering, Classification, Principal Component Analysis and Time Series Analysis.
(79/100).
• Game Theory and Applications (RMIT University): Strategic Form of Games, Incomplete Information, Cooperative
Games.
• Nonparametric Curve Estimation (AMSI - Dr. Aurore Delaigle-University of Melbourne): Kernal Density Estimation, kernel Regression, Spline Regression, Wavelet Analysis and
Bootstrapping.
• Financial Time Series (Access Grid Room- University of South Australia): Spectral decomposition, Box-Jenkins models, Forecasting techniques, Smoothing of time series, GARCH and other volatility models, Stochastic Differential
Equations.
• Statistical Inference: Statistical Inference at the level of Lee Bain and Max Engelhardt (2000).

Price:

(subject to negotiation), starting at 11 EUR/h

Other contact options:

phone: Yes, available.

Mobile phone: Yes, available.

e-mail: Yes, available.

Contact details are not public and will only be exchanged after you have made contact.

Contact:

tutoring-agency.com/register
Registration is free and without obligation.
Vergütung ist Verhandlungssache (VHS).

Prices & Terms and Conditions:

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