Calendar
1. April 9   Tuesday   Kriging: An Application of Least Squares Prediction
2. April 9   Tuesday   15 Million Mortgages: The FHA Experience
3. April 17   Wednesday   On The Relationship Between Certain Kalman Filter Models
                           and Exponential Smoothing Models
4. April 19   Friday   A System for Statistical Workstation Support
5. April 25   Thursday   Redesign of the National Health Interview Survey and Other
                           Demographic Surveys Conducted by the Census Bureau

UPCOMING EVENTS:

1. MAY   9-10 Thurs/Fri   IRS/WSS Workshop on Exact Matching Methodologies (Fee Event)
2. MAY   9-10 Thurs/Fri   WSS/ASA Shortcourse: A Hands-On Review of Statistical Software
                           for Microcomputers (Fee Event. Special Mailing)
3. JUNE 6-7   Thurs/Fri   WSS/ASA Shortcourse: Exploratory Data Analysis (Fee Event)
                           (Special Mailing)
4. JUNE 12   Wednesday   WSS Annual Dinner, Hogate's ($15 per person, cash bar)
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Random Bits: By Terry Ireland, WSS President

It is interesting to reflect on the increasing influence of the computer on the way we do
statistics. When I first started teaching around 1961, the statistical laboratories were
filled with electro-mechanical calculators that were slow and limited in what they could
do. There were many clever techniques -- can you develop a procedure to provide the nec-
essary information to compute means, variances, and correlations for paired observations
by entering each paired observation only once? Standard deviations were harder for few of
those behemoths could take square roots. Around 1970, electronic calculators that could
take square roots (and much more) appeared on the scene. By 1975, many laboratories had
computer terminals with screen displays in active use for statistical lab courses. By
1980 microcomputers and statistical software were coming on line. Within a couple years
these microcomputers will be replaced by a new generation of personal computers that will
dwarf the capabilities of what we presently have. High resolution displays, sophisticated
statistical software, large database stores and interactive data analysis languages will
be the norm.

(Continued)

WASHINGTON STATISTICAL SOCIETY PROGRAM CHAIRS

Agri. & Nat. Res.
Fred Vogel 447-3638
Gary Liberson 363-7140

Economics
Wray Smith 484-9220
Bette Mahoney 695-9053

Social & Dem.
Lee-Ann Hayek 357-1587
Charles Mann 466-6161

Phys. Sci. & Eng.
Seymour Selig 334-3522
Nozer Singpurwalla 676-7515

Pub. Health & Biostat
James Dambrosia 496-5763
Jai Choi 436-7047

Stat. Computing
Harry Foxwell 872-8058
Ron Steele 475-3483

Short Courses
Wendy Alvey 376-0216

Methodology
Cathryn Dippo 523-1874

Newsletter
Julia Oliver 252-1121

Employment
Evelyn Kay 223-2530

Random Bits: By Terry Ireland, WSS President: (Continued)

These dramatic changes give us a strong reason to develop an understanding of the techniques that can be more broadly used than before. The short courses being offered by WSS in response to member interest are computer-oriented. WSS has just finished the short course, Expert Systems in Statistics. The idea that we can use computers to handle some of the planning and analysis of statistical experiments has grown. Personal computers now have the speed and memory capacity to support procedures that examine the results of statistical computation. A few years ago, the computation itself was a challenge.

In May, Harry Foxwell will teach a short course on statistical packages for microcomputers and Jim Dolby will be teaching a course on Exploratory Data Analysis (EDA). EDA began as a collection of paper and pencil techniques, but gained widespread use when the cost of computing dropped through the floor. Harry's course would not have existed ten years ago.

We now have the opportunity to use many of the statistical techniques discussed only in journals as good ideas. With the machinery for those ideas in software, we can hope for better statistical analysis on a broad front. In order to do so, we must include the statistical concepts as well as the computational procedures in the software. That will not be easy.

Our concept of the possible does change over time. Karl Pearson, after performing some straightforward computations with a 14 by 14 contingency table in the 1920's was heard to say that he did not think he had the energy to do that kind of computation again. Today, that computation takes a few seconds on a microcomputer.

PROGRAM ABSTRACTS

TOPIC:	Kriging: An Application of Least Squares Prediction
SPEAKER:	Robert W. Jernigan, American University
CHAIR:	Michael Greene, American University
DATE & TIME:	Tuesday, April 9, 1985; 3:30PM-5:00PM
LOCATION:	American University, Rm. 319, Ward Circle Bldg., Mass. & Neb. Avenues, N.W.
ABSTRACT:	Kriging is the name given to least squares prediction of spatial processes. It is one of the defining tools of the geostatistician. It has been called surface fitting, trend surface analysis, contouring sparse spatial data, and a generalization of spline interpolation. But it comes down to being the best linear unbiased estimation of a stochastic process by generalized least squares. This talk will examine the assumptions, tools, and methods involved in kriging, and present several examples of its use. Kriging has applications in mapping spatial environmental data, including toxic wastes, acid rain, groundwater pollution, and so forth.

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TOPIC:	15 Million Mortgages: The FHA Experience
SPEAKER:	Thomas N. Herzog, Housing and Urban Development (HUD)
CHAIR:	Wray Smith, GWU & Mathematica
DATE & TIME:	Tuesday, April 9, 1985; 12:30PM-2:00PM
LOCATION:	HUD Building, Rm. B182, 7th & D Streets, S.W., Washington, D.C.
ABSTRACT:	This talk presents a discussion of some recent experience on FHA-insured single-family home mortgates, including recent data on claim terminations, such as for foreclosures. An efficient procedure for computing the outstanding balance of alternate mortgage instruments, such as a graduated payment mortgage, will also be presented.

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TOPIC: On The Relationship Between Certain Kalman Filter Models
                and Exponential Smoothing Models
SPEAKER: Nancy Kirkendall, Energy Information Administration
CHAIR: Sandra Mackenzie, Census Bureau
DISCUSSANT: William Cleveland, Federal Reserve Board
DATE & TIME: Wednesday, April 17, 1985; 12:30PM-2:00PM
LOCATION: Forrestal Bldg., Rm. GJ-015, 1000 Independence Avenue, S.W.
ABSTRACT: Many papers on the application of Kalman Filter Models to time series in-
                clude a simple model of the trend of the form: $T(t)=T(t-1)+e(t)$, and
                $z(t)=T(t)+a(t)$ where $T(t)$ represents the trend at time t, $e(t)$ is the error
                in the trend equation, $z(t)$ is the observation or measurement at time t,
                and $a(t)$ is the error in the measurement equation. The update equation for
                this model can be written in the form of an exponential smoothing model if
                time varying coefficients are allowed. It is shown that these coefficients
                converge to a constant value which depends only on the a priori variances
                of $e(t)$ and $a(t)$, and the variance of the prior estimate for $T(o)$. Thus,
                this Kalman filter model is asymtotically equivalent to the standard con-
                stant coefficient exponential smoothing model.

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TOPIC: A System for Statistical Workstation Support
SPEAKER: Peter Welch, IBM
CHAIR: Nozer Singpurwalla, George Washington University
DATE & TIME: Friday, April 19, 1985; 12:30PM-2:00PM
LOCATION: GWU, Marvin Center, Rm. 402-404, 800-21st Street, N.W., Washington, D.C.
ABSTRACT: This talk will first detail a list of disiderata for the software and hard-
                ware support of a statistical workstation or terminal. It will then des-
                cribe an existing APL environment with associated hardware, graphics
                support, work session management utilities, on line teaching facilities,
                etc. which was designed to fulfill a substantial subset of the original
                list. Sample applications of this system will also be discussed.

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TOPIC: Redesign of the National Health Interview Survey (NHIS) and Other
                Demographic Surveys Conducted by the Census Bureau
SPEAKERS: Gary Shapiro and Thomas Moore, Census
CHAIR: Monroe Sirken, National Center for Health Statistics (NCHS)
DISCUSSANTS: Robert Casady and James Massey, NCHS
DATE & TIME: Thursday, April 25, 1985; 1:30PM-3:30PM
LOCATION: Center Bldg., Room 1-23, 3700 East West Highway, Hyattsville, Maryland
ABSTRACT: Following the 1980 Decennial Census, Census undertook a comprehensive re-
                search program to develop optimum sample survey designs for recurring demo-
                graphic surveys. There will be an overview of the redesign research issues
                and results, and possible impacts of the new designs on the survey data. A
                more detailed discussion of the NHIS survey will follow.

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TOPIC: Fee Event: WSS/ASA Shortcourse: A Hands-On Review of Statistical Software
                for Microcomputers
SPEAKERS: Harry Foxwell, American Chemical Society, and Josefino Lago, Westat, Inc.
DATE AND TIME: Thursday and Friday, May 9 and 10, 1985; 9:00AM-4:30PM
LOCATION: George Washington University, 21st and G Streets, N.W., Washington, D.C.
REGISTRATION: Registration through separate ASA Mailing. For additional details, contact
                Harry Foxwell at 872-8058.

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Summary of February Board Meeting

The selection of Hogate's restaurant as the site for the WSS Annual Dinner, June 12, 1985
was approved by the Board at its February 26, 1985 meeting. The slate of nominees for the
upcoming election was presented to the Board. Board members considered and approved a new
Presidents' Service Award to be presented annually.

OTHER PROGRAMS

Workshop on Exact Matching Methodologies

The Washington Statistical Society (WSS) and the Federal Committee on Statistical Methodology are sponsoring a Workshop on Exact Matching Methodologies, to be held at the Rosslyn Westpark Hotel, Arlington, Virginia on May 9-10, 1985.

The two-day conference features both invited and contributed papers by government and non-government analysts doing methodological research in the area of matching. The value and utility of such work from a user perspective will also be presented. The orientation of the paper will be the use of matching for statistical purposes; however, the techniques and methodologies described will be applicable to other purposes as well.

Scheduled sessions will include: (1) an overview of the early developments in matching theory and methodology and prospects for the future; (2) discussion of current theory and practice; (3) descriptions of selected applications; and (4) demonstrations of some available computer software. The program will also include a special session with hands-on access to selected software packages. A limited number of contributed papers are still being accepted.

A registration fee of $75 for WSS members and $100 for non-members will be charged. A volume based on this Workshop will be published in the Fall. Persons interested in obtaining more information and especially those interested in submitting contributed papers may write to: Beth Kilss, Statistics of Income Division, D:R:S, Internal Revenue Service, 1111 Constitution Avenue, N.W., Washington, DC 20224, Telephone: 202/376-0216.

3rd Annual Maryland Gerontological Association Meeting, May 1, 1985

The annual meeting of the Maryland Gerontological Association will be held on Wednesday, May 1, 1985 in Annapolis, Maryland. Among the topics covered by the program are long term care options, community hospital responses to aging, service and health care delivery, housing needs of the elderly and innovative programs for the elderly. Among the featured speakers are Mary Grace Kovar, NCHS, who will speak on health issues and the old old (over 80) population, and T. Franklin Williams, National Institutes of Health, who will deliver the keynote address. The cost: $25 MGA members; $30 Non-members, $17 students and Seniors over 60 (the price includes registration and lunch at the Governor Calvert House).

For more information, contact George T. Baker, Program Chairman, at Center on Aging, University of Maryland, College Park, MD 20742, 301/454-5856. Or, in Montgomery County, call Don Wassmann, 301/468-4430. In Baltimore, Mrs. Griffeth, at 301/528-7866, and in Glen Burnie/Annapolis, call Connie Panella at 301/687-6707.

*** WSS ELECTION ***

The election of new officers for the 1985-1986 program year will be conducted by ballot in a special mailing in May. The following have agreed to run for office:

For Vice-President and President-Elect:

Daniel Kasprzyk, Census
David Morganstein, Westat, Inc.

For Methodology Program Chair:

David Marker, Westat, Inc.
Mary Mulry-Liggan, Census

For Representatives-at-Large:
  (two to be elected)

Wendy Alvey, Internal Revenue Service
Susan S. Ellenberg, National Institutes of Health
Eric V. Slud, University of Maryland
Peter F. Thall, George Washington University

For Secretary:

Rich Allen, USDA

(Continued)

WSS Election (Continued)

Candidates other than these may be nominated by petition of at least forty (40) members of WSS, provided that such a petition is received by the Nominations and Elections Committee at least two weeks before balloting. Any petitions must be received by Maria Gonzalez, Georgetown Gateway, 2500 Q Street, N.W., #233, Washington, DC 20007 by April 30, 1985.

Membership News

Have you changed jobs or received any honor or award? Members are invited to submit these announcements to Julia Oliver, P.O. Box 23502, Washington, DC 20026. Each submission should include a daytime telephone number for verification purposes.

Dennis Affholter, formerly a Senior Fellow with the National Governors' Association's Center for Policy Research, has joined the Maryland Department of Human Resources as Director of Planning and Analysis. His new address is: Department of Human Resources, Office of Administration, 6th Floor, 1100 North Eutaw Street, Baltimore, Maryland. 21200.

Dick Taeuber, formerly a private consultant, has joined the Division of Elementary and Secondary Education Statistics, National Center for Education Statistics, U.S. Department of Education as a Senior Mathematical Statistician. His new address is NCES, 1200-19th Street, N.W., Washington, D.C., 20208-1401.

EMPLOYMENT COLUMN

Deadline for inserting notice is five (5) weeks before the month of publication.

Send notices and requests to:
Evelyn R. Kay
520-22nd Street, N.W.
Washington, D.C. 202/331-1153

JOB OPENINGS

The U.S. Postal Service Headquarters in Washington, D.C. has positions for senior level professionals as follows. To apply for either position, send resume with salary/history requirements to U.S. Postal Service, Headquarters Personnel, VA 6068, 475 L'Enfant Plaza, S.W., Washington, D.C. 20260-4264.

Mathematical Statistician: Participates in the evaluation and development of statistical systems for a broad area of postal operations. Activities include the design of sampling plans, estimation procedures, and measures of precision. Graduate level training in mathematical statistics and experience in sampling, experimental design, and methods of statistical estimation is required. Working knowledge of SAS and experience with an IBM operating system environment are advantageous. Salary $30,034 to $41,230 plus $1643 cost of living and adjustment, depending on individual qualifications.

Operations Research Analyst: Participates in developing and implementing quality control mechanisms, new data-collection methodologies and other program improvements for a variety of large, complex information systems which utilize sampling and statistical development of data. Activities include the development of direct data entry programs and design of error feedback/quality control systems. Professionals with education and experience in operations research, systems analysis, mathematics, statistics, or management science and experience in the application of problem solving techniques to the data collection aspects of survey development are invited to apply. Salary $31,527 to $43,319 plus $1643 cost-of-living adjustment, depending on qualifications and experience.

Statistics Program
The University of Maryland, College Park, Maryland

The University of Maryland's Statistics Program offers a wide range of courses in applied statistics, mathematical statistics, and probability, leading to the M.A. and Ph.D. degrees in Statistics. An applied statistics option is offered for Master's students planning a career in industry or government. Coursework in applied statistical topics may be combined with the study of computational methods or statistical applications in other disciplines to prepare for professional employment in statistics.

Extensive course offerings are also available at the undergraduate level, and a B.A. concentration in statistics is available as part of the undergraduate program in mathematics. Both full time and part time degree programs can be arranged, and individual courses may be taken for the purpose of career development.

After-Hours Program

Courses are offered on a regular basis during the late afternoon and early evening hours. These courses are designed for the Master's level student, and the content of these courses stresses applied statistical topics. The after-hours courses are taught by regular members of the University of Maryland statistics faculty. It is possible to complete the M.A. degree under the after-hours program.

Faculty

The program is administered by the Statistics Branch of the Mathematics Department. The current members of the Statistics Branch and their research interests are:

I. Janssen   Stochastic models in biology, statistical computing.

B. Kedem   Time series, pattern recognition.

P.W. Mikulski   Nonparametric methods, large sample theory.

E.V. Slud   Stochastic processes, survival analysis, probabilistic ergodic theory.

P.J. Smith   Multivariate methods, survival analysis, quality control.

R. Syski   Probability, Markov processes, queueing theory.

C.Z. Wei   Estimation in time series, stochastic approximation, control theory.

G.L. Yang   Mathematical statistics, stochastic models in biology, survival analysis.

The Campus

The University of Maryland is located in suburban Washington, D.C. This location allows for easy interaction between the university and the many federal agencies involved in statistical activity and research. The College Park campus has 35,000 students, an extensive scientific library, large scale IBM and Sperry mainframe computer systems and rapidly expanding microcomputer facilities.

Undergraduate Statistics Courses (Continued)

To convey a realistic picture of the wide variety of these decentralized statistics offer-
ings, some abbreviated excerpts from descriptions of undergraduate course offerings foll-
ow: "In two semesters basic concepts and procedures of statistics in the modern business
enterprise are introduced.   Three areas are covered:

1. The perception of business situations through statistical surveys, inventories and
continued registers. This part includes the discussion of statistical inquiries,
the formation and nature of statistical aggregates (data), and simple analytical
methods such as graphs, ratios, measures of central tendency and dispersion, reg-
ression, time series analysis, index numbers and forecasting.

2. A second part covers the principles of statistical inference with applications to
administrative situations. It includes important probability distributions such
as the binomial, poisson, hypergeometric, normal, exponential, t, chi-square and F
distributions. These are applied to practical situations such as survey sampling,
statistical quality control, testing of parameter-based hypotheses in univariate
and bivariate situations, as well as to non-parametric hypotheses.

3. A third part extends probability based inferential reasoning to administrative de-
cisions with quantitative information in situations with varying degrees of risk.
Students explore....the value of additional information in decision situations,
Bayes' theories and Monte Carlo simulation of more complex decision models.
(pp. 162-151 and pp. 162-152)".

Or "Students will undertake a small-scale sample survey....they will study survey designs,
sampling procedures, questionnaire construction, and techniques for analyzing the data
after it has been collected" (pp. 143-234, Analysis of Political Data).

In another department: "...the study of arrays of experimental measurements, frequency
distributions, measures of central tendency, variability, graphic presentation of data and
curve fitting, probability theory and conditional probability, hypothesis testing, para-
meter estimation, correlation and regression....analysis of variance....strong emphasis is
placed on the logical bases of psychological measurement, experimental design, and statis-
tical inference...this course is self-paced. Video taped lectures and demonstrations are
used" (pp. 192-157, Statistical Analysis and Experimental Design).

The University Bulletin notes that this course covers material that is routinely included
as part of the comprehensive examination for psychology majors. A statistics course in the
sociology department covers "...descriptive and inferential statistical methods. Special
attention....to the reading and construction of tables and graphs, and to techniques for
survey analysis....qualitative and quantitative variables, norming operations, cross
tabulations, measures of central tendency and dispersion, the normal distribution, corre-
lation, regression, probability and sampling" (pp. 184-203, Social Statistics).

It is obvious that these applied statistics courses have different foci and emphasis than
the typical statistics course in the math department as shown in its course description:
"Probability Theory: probability spaces, random variables and their distributions, multi-
variate distributions...the normal and related distributions, and the central limit the-
orem...." (pp. 157-233, Mathematical Statistics I).

Graduate Statistics Courses

The organization of graduate statistics courses is very similar, except that there is a
larger number of them. Courses are listed in ascending order of the first three digits of
the department number.

| Course Title	Number	Credit	Department
Principles of Biostatistics I	116-501	3	Biostat-Epidemiology
Principles of Biostatistics II	116-502	3	Biostat-Epidemiology
Introductory Biostatistics	116-513	3	Biostat-Epidemiology
Statistical Mechanics	123-472	3	Chemistry
Mathematical Statistics	133-512	3	Economics
Econometrics I	133-513	3	Economics
Econometrics II	133-514	3	Economics
Quant. Meth. Foreign Service	133-523	6	Economics
Analysis of Political Data	143-508	3	Government
Population Trends	149-530	3	Demography
Methods of Social Research I	149-503	3	Demography
Methods of Social Research II	149-504	3	Demography
Techniques of Demographic Analysis I	149-505	3	Demography
Techniques of Demographic Analysis II	149-506	3	Demography
Statistics for Linguistics Research	154-584	3	Language & Linguistics
Statistical Analysis	155-515	3	International Affairs
Research Marketing Decision	156-552	3	SBA
Statistics	162-554	3	SBA-Accounting
Statistics	173-525	2	Orthodontics
Data Analysis	173-526	2	Orthodontics
Application of Statistical Principles to Pharmacology	178-529	2	Pharmacology
Mathematics for Biophysics I	182-543	3	Physiology-Biophysics
Mathematics for Biophysics II	182-544	3	Physiology-Biophysics
Biostatistics for Engineering	182-579	3	Biomedical Engineering
Biostatistics for Engineering II	182-580	3	Biomedical Engineering
Tutorial in Introductory Statistics	192-911	3	Psychology
Tutorial in Advanced Statistics	192-912	3	Psychology

Although it cannot be listed on a par with the other courses, it deserves mention that the graduate program in Public Policy makes it known that "...all students will be expected to demonstrate basic competence in statistics and computer technology...to conduct social science research. This requirement can be met either by: (1) submitting acceptable evidence of acquired competence; (2) passing an examination administered semi-annually on the University campus the last Saturday in September and January; or (3) completing designated courses available on campus on a pass-fail basis.[3]

Limitation of space does not permit to excerpt passages from these numerous statistics course listings to show how well adjusted to the specific subject area these statistics courses are. This may be more costly to the university, but it certainly serves the students better and in this way, also the cause of statistics.

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3 Georgetown University Catalogue, The Graduate School, 1984-1985, page 140
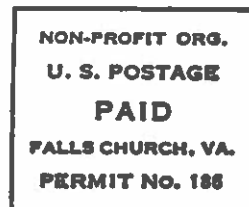
List of Courses

<u>Undergraduate:</u>

STAT 100	Elementary Statistics and Probability
STAT 250	Introduction to Statistical Models
STAT 400-401	Applied Probability and Statistics
STAT 410	Introduction to Probability Theory
STAT 411	Introduction to Stochastic Processes
STAT 420	Introduction to Statistics
STAT 421	Elements of Statistical Inference
STAT 440	Sampling Theory
STAT 450	Regression and Variance Analysis
STAT 460	Applied Nonparametric Statistics
STAT 464	Introduction to Biostatistics
STAT 498	Selected Topics in Statistics

<u>Graduate:</u>

STAT 600	Probability Theory I
STAT 601	Probability Theory II
STAT 610	Stochastic Processes I
STAT 611	Stochastic Processes II
STAT 650	Applied Stochastic Processes
STAT 698	Selected Topics in Probability
STAT 700	Mathematical Statistics I
STAT 701	Mathematical Statistics II
STAT 710	Advanced Statistics I
STAT 711	Advanced Statistics II
STAT 720	Nonparametric Statistics
STAT 740	Analysis of Variance
STAT 750	Multivariate Analysis
STAT 770	Analysis of Categorical Data
STAT 798	Selected Topics in Statistics

Admission

Candidates for admission to the M.A. and Ph.D. programs should have completed an under-graduate program which included a strong emphasis on mathematics. A background in statistics is useful but not necessary. Nondegree students may register in any course for which they have the prerequisites. For further information write to:

Director, Statistics Program
Department of Mathematics
University of Maryland
College Park, Maryland 20742

or call 301/454-4883

The Teaching of Statistics at Georgetown University, Washington, D.C.
By: Othmar W. Winkler

General Remarks

Statistics is well represented in the various curricula of Georgetown University's many schools and departments. Georgetown University was established in 1789, the same year as the American Federal Government. As a Jesuit University it also is the oldest Catholic university in the nation.[1] Numerous statistics courses are taught in a decentralized manner, by professors who usually teach other subjects in their respective areas. Far from being a disadvantage, such incorporation into the diverse subject areas has interesting and important implications for the teaching of statistics. Although this decentralized state of affairs does not allow for an easy overview, no single individual or group of persons can impose its view on the different departments that need statistics. Each statistics course thus remains close to the needs of its subject area in which it is taught. Demographers obviously need other topics in a statistics course than students of management or physics. Such divergent needs would be more difficult to satisfy if statistics were offered centrally. This assures that statistics will not be perceived as an alien topic to the same extent as that is bound to happen in a centralized teaching arrangement. At any rate, there are four different semester courses of mathematical statistics offered in the math department which are widely taken as electives.

Undergraduate Statistics Courses

In the following the courses are identified by their title, course number, number of credit hours, and the department in which they are offered.[2] Only those courses are listed which explicitly mention "statistics" in their title. They are ranked in ascending order by the first three digits of the department number. In addition to these courses which explicitly deal with statistics, there are various other courses that also contain statistics without mentioning this fact in the title.

Course Title	Number	Credit	Department
Economic Statistics	133-121	3	Economics
Intro to Econometrics	133-122	3	Economics
Analysis of Political Data	143-234	3	Government
Public Opinion	143-236	3	Government
Introduction to Statistics (This course fulfills the math requirement for Nursing)	157-005	3	Mathematics
Probability & Statistics	157-040	4	Mathematics
Mathematical Statistics I (This same course is offered under another name in Computer Science)	157-233	3	Mathematics
Probability and Statistics I	157-233	3	Computer Science
Mathematical Statistics II	157-234	3	Mathematics
Applied Statistics I	162-151	4	SBA
Applied Statistics II	162-152	4	SBA
Quantum Physics III	181-232	4	Physics
Social Statistics	184-203	3	Sociology
Statistical Analysis & Experimental Design	192-157	3	Psychology

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1 According to its undergraduate catalogue is "...is an institution of a national and an international cast...located in close proximity to the nation's government and to the international organizations which have roots in Washington...it attracts students from all parts of the nation and from many areas of the world. Georgetown University is committed to a view of reality which reflects Catholic and Jesuit influences... It sees all men...as endowed with a human dignity always to be respected...it wishes these convictions...to be manifested in all its campus life...it seeks to open its arms...to those of all beliefs and all races...it imposes no religious creed on any faculty member or any student, but it expects them to respect the religious convictions of each person..."

2 See the Undergraduate University Bulletin, 1984/1985.