Approved Methods Courses

In March, 2002, Department Council approved a list of courses that would serve to fulfill the requirement for *9 units of statistics, research design, or methods. The list is to be reviewed annually by the Graduate Curriculum Committee, who will consider suggestions for additions or deletions each fall or on an ad hoc basis.

This requirement is intended to be a means of broadening a student's technical expertise. As such, the goal of this requirement is to train a student broadly in a technique (or set of techniques), so that those techniques could be applied in a broad range of appropriate settings (e.g., multivariate statistics, path analysis, discourse analysis, survey techniques). Generally, such goals are achieved in the context of a formal course. It is not envisioned that a student could fulfill this requirement by conducting a specific research project (although such a project is a perfect use of Psyco 600). Occasionally, for example in the case of some neuroscience methods, students may conduct "laboratory rotations" in which the specific goal is to learn general laboratory techniques that they cannot routinely learn in the laboratory of their supervisor; in the typical case in the Institute for Neuroscience, two of these rotations count for one course.

ANTHR 508 Methods in Linguistic Anthropology

*3 (fi 6) (either term, 0-3s-3). Selected topics in field methods and analytic techniques used by linguistic anthropologists, and their extensions in socio-cultural anthropology. Prerequisite: consent of Department. Offered in alternate years.

ANTHR 511 Ethnographic Field Methods I

*3 (fi 6) (first term, 0-3s-0). Prerequisite: consent of Department. Note: Not open to students with credit in ANTHR 401 or 505. Offered in alternate years.

ANTHR 589 Advanced Seminar in Linguistic Anthropology

*3 (fi 6) (either term, 0-3s-0). Prerequisite: consent of Department.

EDPY 500   Introduction to Data Analysis in Educational Research

*3 (fi 6) (either term, 3-0-3). Prerequisite: consent of Department. May contain alternative delivery sections; see '200.

EDPY 501   Introduction to Methods of Educational Research

3 (fi 6) (either term, 3-0-3). Prerequisite: consent of Department.

EDPY 502   Single Subject Research Design

*3 (fi 6) (first term, 3-0-0). Relates to profoundly or severely mentally retarded, multiply handicapped persons. Offered alternate years. Prerequisite: Consent of Dept.

EDPY 503   Qualitative Methods of Educational Research

*3 (fi 6) (either term, 3-0-3). Prerequisite: EDPY 501 or equivalent or consent of Department.

EDPY 505   Advanced Univariate Statistics in Educational Research

*3 (fi 6) (either term, 3-0-3). Prerequisites: EDPY 500 or equivalent and consent of Department.

EDPY 507   Test Theory

*3 (fi 6) (first term, 3-0-0). Prerequisites: EDPY 500 or equivalent, and consent of Department.

EDPY 508   Item Response Theory

*3 (fi 6) (either term, 3-0-0). Topics in educational and psychological measurement will be covered using an item response theory framework. Basic issues in model selection, parameter estimation, and model-data fit will be studied for both unidimensional and multidimensional models. Selecting topics such as test construction,

equating, differential item functioning, and computerized adaptive testing will also be discussed. Prerequisites: EDPY 507 or equivalent and consent of Department.

EDPY 544   Principles of Psychological Testing and Assessment

*3 (fi 6) (either term, 3-0-1). Prerequisite: consent of Department.

EDPY 545   Individual Psychological Assessment

*6 (fi 12) (two term, 3-0-3). Prerequisite: consent of Department.

EDPY 605   Multivariate Statistical Methods in Educational Research

*3 (fi 6) (second term, 3-0-3). Prerequisites: EDPY 505 or equivalent and consent of Department. Formerly EDPY 506.

EDPY 615   Program Evaluation

*3 (fi 6) (either term, 3-0-0). This course will introduce students to the theoretical ideas and practical applications of program evaluation.

Prerequisites: EDPY 501 or equivalent and consent of Department.

EDSE 611 Phenomenological Research and Writing

*6 (fi 12) (two term, 0-3s-0). This research seminar explores human science methodology and focuses on hermeneutic phenomenology. The course investigates and develops descriptive, interpretive, vocative, and ethical dimensions of reflective writing. The meaning of any possible human experience can be a topic for phenomenological inquiry. This course is especially relevant to persons interested in the study of phenomenological meaning in the domains of education, psychology, counseling, the health sciences, and related professional and academic fields.

HECOL 532   Family Health and Wellness: Theoretical and Measurement Issues

*3 (fi 6) (either term, 0-3s-0). Models of family health and research related to these models. Examination of the health of families and the family's influence on health. Discussion of measurement and assessment issues. Applications to nursing, family studies and other health-related disciplines. (Course is cross-listed as NURS 532). Credit will only be granted for one of FAM 532, HECOL 532, or NURS 532.

HECOL 602   Research Methods in Human Ecology: Selected Topics

*3 (fi 6) (either term, 0-3s-0). This course focuses on selected research methods as applied to Human Ecological research. Topics will vary from time to time as demand dictates and will be offered as resources permit. May be taken for credit more than once. Prerequisite: graduate standing and permission of Instructor.

HECOL 603   Qualitative and Community Based Methods in Health Research

*3 (fi 6) (either term, 0-3s-0). Theoretical understanding of qualitative and community-based research designs, including phenomenology, grounded theory, ethnography, biography and case study. Methods of data collection such as interviews, focus groups and participant observation. Strategies for data analysis and presentation.

HIST 601   Philosophy of History and Methodology

*3 (fi 6) (either term, 0-3s-0).

HIST 604   Application of the Social Sciences to History

*3 (fi 6) (either term, 0-3s-0).

LING 515   Field Methods

*3 (fi 6) (either term, 3-0-0). Practical experience in linguistic data collection and analysis of the sound and form systems of an unfamiliar language.

Prerequisites: LING 205, LING 309 (formerly 209), and LING 310 (formerly 210) or consent of Department. Not offered every year.

LING 614   Methods in Experimental Phonetics

*3 (fi 6) (either term, 0-1s-3). Theoretical and practical training in experimental phonetics. Emphasis on practical experience with on-going research. Prerequisite: LING 512 (LING 412 prior to 1997/98).

LING 615   Methods in Experimental Psycolinguistics

*3 (fi 6) (either term, 0-1s-3). Theoretical and practical training in experimental psycholinguistics. (Emphasis on practical experience with on-going research.) Note: This course should be taken late in the MSc program. Prerequisite: LING 603.

LING 616   Methods in Experimental Phonology

*3 (fi 6) (either term, 0-1s-3). Theoretical and practical training in experimental phonology. Emphasis on practical experience with on-going research. Prerequisite: LING 603.

LING 617   Methods in Second Language Acquisition

*3 (fi 6) (either term, 0-1s-3). Theoretical and practical training in second language acquisition research, with emphasis on practical experience. Prerequisite: LING 603.

LING 636   Analysis of Meaning

*3 (fi 6) (either term, 3-0-0). Prerequisite: consent of Department.

MARK 701   Research Methodology in Marketing

*3 (fi 6) (either term, 3-0-0). The nature of scientific inquiry and its relevance and application to research in marketing. The development and testing of marketing theory. Marketing measurement methodology. Pre-requisite: MARK 614 or equivalent

MARK 702   Buyer Behavior

*3 (fi 6) (either term, 3-0-0). In-depth study and analysis of the current buyer behavior research literature. Models of individual and group (organizational) buying processes. Information processing views of consumer decision making. Models of attitudes, perceptions, preferences, and choice. The use of advanced econometric and psychometric techniques in analyzing buyer behavior. Prerequisite: MARK 624 or equivalent

MARK 703   Marketing Modeling

*3 (fi 6) (either term, 3-0-0)

PHIL 510   Philosophy of Science

*3 (fi 6) (either term, 3-0-0).

PHS 505   Fundamentals of Public Health

*3 (fi 6) (first term, 3-0-0). This course provides an overview of the various disciplines making up and impacting on public health. Discussions will cover the Canadian health care system, infectious and chronic disease epidemiology and control, environmental health, occupational health, health care evaluation, disease prevention, health promotion, and disease and exposure assessment.

PHS 530   Data Analysis in Public Health Sciences

*3 (fi 6) (either term, 3-0-1). Introduction to data management and analysis. Statistical software for data capture, editing and management; as a basis for the design of research including sample size and power; as well as data presentation, including graphics; to culminate in intermediate level ability to apply a range of statistical analytical techniques. No previous computer experience is needed. Prerequisite: PHS 591 or consent of instructor.

PHS 570   Introduction to Health Care Economics

*3 (fi 6) (either term, 3-0-0). A survey of health economic theory and empirical studies, topics and areas covered include: (1) demand, supply, and utilization; (2) production and costs (3) resource allocation in health care labor markets; (4) selected facets of health care planning; (5) benefit cost analysis. The empirical studies examined in the course require an understanding of simple and multiple regression techniques.

PHS 590   Introduction to Epidemiology

*3 (fi 6) (first term, 3-0-0). An introduction to the principles and methods of epidemiology and their application. Topics include indices to describe and measure health status, design strategies, statistical association, clinical significance, causation descriptive studies, case control studies, cohort studies, intervention studies, bias confounding, and screening.

PHS 591   Statistical Methods in Epidemiology

*3 (fi 6) (either term, 3-0-0). An introduction to elementary biostatistical methods used to analyze epidemiologic data. Topics will include person-years, incidence rates, prevalence rates, direct and indirect standardized, standardization mortality

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ratio, attributable risk, analysis of 2 x 2 tables, Fisher's exact test, odds ratio, Mentel-Haenszel methods, Iife tables, Kaplan-Meier methods. A knowledge of computers is not required. Prerequisite: Introductory statistics course or permission of Instructor.

PHS 690   Advanced Methods in Epidemiology

*3 (fi 6) (second term, 3-0-0). Epidemiologic methods related to specific study designs and general issues relating to the conduction of epidemiologic studies are covered at an advanced level. Practical and theoretical aspects will be explored.

PHYSL 527   Experimental Approaches in Neuroscience

*3(fi 6) (second term, 3-0-0) Lecture course designed to provide an appreciation and understanding of the vast array of experimental approaches used in neuro-biological research. Topics will include electrophysiological, neuropharmacological, and anatomical approaches used to understand how the nervous system functions at the molecular, cellular, and system levels. For advanced undergraduate and graduate students. Prerequisite: PHYSL 372 or PMCOL 371. Offered in alternate years.

SOC 509   Multi-Variable Sociological Analysis

*3 (fi 6) (either term, 3-0-2). Prerequisites: SOC 210 and 315. Note: Not to be taken by students with credit in SOC 411 or 410.

SOC 514   Evaluation Research

*3 (fi 6) (either term, 3-0-0).Prerequisite: SOC 410.

SOC 515   Quantitative Methods in Social Research

*3 (fi 6) (either term, 3-0-2). Prerequisites: SOC 210 and 315 or equivalent. Note: Not to be taken by students with credit in SOC 412 or 417. Not available for credit for students with credit in R SOC 415.

SOC 518   Qualitative Methods in Social Research

*3 (fi 6) (either term, 3-0-2).Prerequisite: SOC 418 or equivalent or permission of Instructor.

SOC 519   Comparative and Historical Methods in Sociological Research

*3 (fi 6) (either term, 3-0-2).

Prerequisites: SOC 210 and 315 or equivalent. Note: Not to be taken by students with credit in SOC 419.

SOC 533   Research Design

*3 (fi 6) (second term, 0-3s-0).

SOC 558   Techniques of Demographic Analysis

*3 (fi 6) (either term, 3-0-0). Prerequisite: SOC 251. Note: Not to be taken by students with credit in SOC 450.

SOC 609   Multivariate Analysis

*3 (fi 6) (first term, 3-0-0). Prerequisites: SOC 509 and 515 or 410 and 417 or equivalent. Note: Formerly SOC 510. Not to be taken by students with credit in SOC 511 or 510.

SOC 616   Structural Equation Modeling with LISREL

*3 (fi 6) (either term, 3-0-0). Prerequisite: SOC 609.

STAT 512   Techniques of Mathematical Statistics

*3 (fi 6) (either term, 3-0-0). Introduction to mathematical techniques commonly used in theoretical Statistics, with applications. This course is taught concurrently with STAT 312; those students taking it for graduate credit will be required to submit a project on a topic chosen in consultation with the instructor, in addition to fulfilling the requirements of STAT 312. Prerequisite: consent of Department.

STAT 532   Survival Analysis

*3 (fi 6) (either term, 3-0-0). Survival distribution and hazard rate, Kaplan-Meier estimator, Greenwood's formula. Log-rank and weighted log-rank tests, asymptotic methods. Regression models including Cox proportional hazards Model and accelerated failure time models. Likelihood and partial likelihood for survival models; diagnostics. Prerequisite: STAT 466 or consent of Department.

STAT 558   Techniques of Statistical Analysis I

*3 (fi 6) (either term, 3-0-0). The contents will be selected each year from applied topics. Prerequisite: consent of Department.

STAT 561   Sample Survey Methodology

*3 (fi 6) (either term, 3-0-0). Review of basic sampling schemes: simple random sampling, and stratified random sampling, and systematic sampling. Multistage sampling schemes. Estimation of nonlinear parameters: ratios, regression coefficients, and correlation coefficients. Variance estimation techniques: linearization, BRR, jackknife,

and bootstrap. Selected topics: model-based estimation, regression analysis from complex survey data. Relevant computer packages. Prerequisites: STAT 361, 466, 471.

STAT 562   Discrete Data Analysis

*3 (fi 6) (either term, 3-0-0). Sampling models and methods of inference for discrete data. Maximum likelihood estimation for complete contingency tables, measures of association and agreement. Goodness-of-fit. Incomplete tables. Analysis of square tables; symmetry and marginal homogeneity. Model selection and closeness of fit; practical aspects. Chi-square tests for categorical data from complex surveys.

Prerequisite: STAT 466.

STAT 566   Statistical Inference

*3 (fi 6) (either term, 3-0-0). An introduction to the theory of statistical inference. Topics to include exponential families and general linear models, likelihood, sufficiency, ancillarity, interval and point estimation, asymptotic approximations. Optional topics as time allows, may include Bayesian methods, Robustness, re-sampling techniques. This course is intended primarily for MSc students. Prerequisite: STAT 466 or consent of Department.

STAT 568   Design and Analysis of Experiments

*3 (fi 6) (either term, 3-0-0). The general linear model. Fully randomized designs, one-way layout, multiple comparisons. Block designs, Latin squares. Factorial designs confounding, fractions. Nested designs, randomization restrictions. Response surface methodology. Analysis of covariance. Prerequisite: STAT 378. Corequisites: STAT 466, 471.

STAT 575   Applied Multivariate Analysis

*3 (fi 6) (either term, 3-0-2). The multivariate normal distribution, multivariate regression and analysis of variance, classification, canonical correlation, principal components, factor analysis. Prerequisite: consent of Department. STAT 575 may not be taken for credit if credit has already been obtained in STAT 475.

STAT 578   Regression Analysis

*3 (fi 6) (either term, 3-0-0). Multiple linear regression, ordinary and generalized least squares, partial and multiple correlation. Regression diagnostics, collinearity, model building. Nonlinear regression. Selected topics: robust and nonparametric regression, measurement error models. Prerequisites: STAT 378 and a 400-level statistics course.

STAT 580   Stochastic Processes

> *3 (fi 6) (either term, 3-0-0). Elements of stochastic processes. Discrete and
continuous time Markov Chains; Birth and Death processes. Branching processes.
Brownian Motion. General Stationary and Markov processes. Examples. Prerequisite:
STAT 471.

STAT 679   Time Series Analysis

> *3 (fi 6) (either term, 3-0-0). The autocorrelation function and spectrum and their
> estimates. Linear stationary models; autoregressive, moving average, and mixed
> models. Linear non-stationary models; autoregressive integrated moving average
> models. Forecasting. Model identification and estimation. Spectral analysis.
> Prerequisite: STAT 466 or equivalent.

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