University at Albany – State University of New York
College of Arts and Sciences
Department of Economics

Advanced Certificate in Economic Forecasting
Proposed starting date: Fall 2004

I. Introduction and Rationale

The Department of Economics is proposing the introduction of an Advanced Certificate (Graduate Certificate) in Economic Forecasting beginning the fall semester of 2004. Forecasting is a rapidly developing field with wide applicability in business and the public sector. The proposed Certificate has been designed to attract local, national, and international students and professionals interested in obtaining formal training in the current methods and practices in economic forecasting. The Certificate builds on the Economics Department's historical strength in econometric forecasting and on its unique relationship with numerous New York State and Federal agencies and with private business organizations that are actively engaged in the emerging field of economic forecasting.

The courses required for the Certificate all apply to the M.A. program in Economics. They may be taken on an elective basis by students in the Ph.D. program in Economics or in other graduate programs, including business, sociology, and public administration.

Commitment to Continuing Professional Development

For more than 30 years the Economics Department at the University at Albany has been committed to training professional economists through its M.A. and Ph.D. programs. However, in a changing work environment, the focus of our graduate programs must also change in order to adapt to new realities. Businesses need forecasts for sales, earnings, stock prices, and so on; governments at the state and federal levels need projections for revenues, unemployment, expenditures, welfare rolls, traffic, and the like for planning and budgetary purposes.

As organizations have become increasingly more complex, the need for professionals engaged in scientific forecasting has rapidly increased in recent years. There are now a number of professional journals (*International Journal of Forecasting, Journal of Forecasting*, etc.) that deal with economic forecasting, and a professional society – the International Institute of Forecasters – coordinates such activities. For the last 13 years, Washington D.C. has hosted an Annual Federal Forecasters' conference with hundreds of attendees.

A Ph.D. is not necessary for most of these forecasting jobs. We believe that we can train professionals to use state-of-the-art forecasting techniques in a Graduate Certificate program.

Using funding from the New York State Division of Budget, the Econometric Research Institute – a research arm of the Economics department – has been conducting surveys of business firms and economic professionals since 2000. The main purpose of these surveys is to monitor the economic health the New York economy in real time, and the results are used in New York State revenue forecasting process. The Econometric Research Institute will be a "natural lab" for the forecasting students.

II. Curriculum

The Graduate Certificate in Economic Forecasting requires five courses (15 credits). Students who are admitted to M.A. program, in addition to the Certificate program, can have these courses applied toward the requirements for the M.A. degree. The courses carry three credits each:

Eco 519: Economic Surveys and Forecasting (3)
This course introduces the survey methodology in economics and business for forecasting purposes. Surveys include those of households, experts, and establishments. Topics include: Survey data and methodologies, evaluation of survey data and forecasts, use of survey data in time series modeling techniques for forecasting purposes. Discussion of such important macroeconomic indicators as the leading economic indicators, NAPM index, Diffusion Indices, Consumers sentiment, Price and Industrial Production indices, etc. will be included.

Eco 520: Quantitative Methods I (3)
Introduction to quantitative methods in economics. Techniques of data analysis, statistical theory, and linear regression are applied to economic problems.

Eco 521: Quantitative Methods II (3)
Continuation of Eco 520. Econometric extensions of linear regression, forecasting, and methods of analyzing time-series and cross-section data.

Eco 525: Time Series and Forecasting (3)
This course introduces univariate and multivariate time series models for forecasting in economics. Topics include ARIMA, VAR and GARCH models, unit roots and cointegration, out-of-sample forecasting techniques, model selection, response function analysis and variance decompositions, state space models, various non-linear models, Bayesian approaches and forecast evaluation. Use will be made of case studies and real-life applications in business and finance.

Eco 529: Forecasting in the Public Sector (3)
The course offers a comprehensive analysis of the role, importance, and mechanics of economic forecasting in the public sector including the Federal, State governments, and in international organizations like IMF, World Bank, and OECD. The quality of these forecasts in relation to private market forecasts will be explored. The importance of long-term and short-term forecasts for revenues, taxes, economic growth, Medicaid and Medicare expenditures, welfare caseloads, transportation, etc. will be studied from the standpoint of planning and budgetary purposes. The role of bias in these forecasts due to economic and political uncertainties, and other institutional factors are analyzed.

III. Faculty

The core faculty associated with the program are four current members of the Economics Department plus one new member who is expected to join the department in Fall 2004. In teaching the courses designated for the certificate, these faculty will be joined by outside economists who are experts in forecasting.

Faculty Vita are in the Appendix.

Core Faculty:

Kajal Lahiri is Professor of Economics and Health Policy Management & Behavior, and he is the Director of the Econometric Research Institute. He has been at the university since 1976 and has supervised over 35 doctoral dissertations. Dr. Lahiri is on the editorial boards of the *Journal of Econometrics*, the *International Journal of Forecasting*, *Empirical Economics*, and *Journal of Business Cycle Measurement and Analysis*, and is the author of numerous articles and books dealing with forecasting. He has extensive research experience with the IMF, the World Bank, the Social Security Administration, and the U.S. Department of Transportation.

Terrence Kinal is Professor of Economics and Associate Director of the Econometric Research Institute. He has published many papers on econometric analysis and forecasting and has extensive consulting experience. His research interests include regional forecasting and properties of econometric estimators.

Thad Mirer is Associate Professor of Economics. He is the author of *Economic Statistics and Econometrics*, which covers these subjects at an introductory level. His empirical research has been in the areas of labor economics and the distribution of income, and he is currently interested in Social Security and the behavior of retired persons.

Jae-Young Kim is Associate Professor of Economics. He is a well-known time series econometrician whose recent work has dealt with problems of structural breaks in non-stationary variables and of model selection. He has experience

working with multi-country data on foreign trade flows with special reference to East Asian countries.

Affiliated Professionals:

Donald J. Boyd, Ph.D., is the director of the Fiscal Studies Program at the Rockefeller Institute of Government, the public policy research arm of the State University of New York. The Fiscal Studies Program provides practical independent research about state and local government finances in the 50 states. His past positions include Director of the economic and revenue staff for the New York State Assembly Ways and Means Committee.

Denis Kwiatkowski, Ph.D., is Senior Fiscal Policy Analyst, New York State Division of the Budget. He developed the so-called "KPSS test," a widely used statistic for testing the null of stationarity in time series. He has taught monetary policy, econometrics, and time series at Central Michigan University and Fordham University.

Robert L. Megna, M.S., is the head of the Economic and Revenue Unit of the New York State Division of the Budget. He has been leading groups forecasting State revenues for 15 years and has written articles on forecasting and state tax policy. He is responsible for revenue projections used in the State Budget and heads the team that develops and monitors the revenue side of the State Financial Plan. Mr. Megna also worked as an economist for AT&T, forecasting telecommunications demand.

Qiang Xu, Ph.D., is Chief Econometrician & Director of Research, New York State Division of the Budget. Among his responsibilities is to forecast national and state economic conditions for use in the Executive Budget process and for promoting development of the State's economy. He also advises the Division of Budget staff in regard to the formulation and risks underlying the State's revenue forecast. His research interests are in Time Series Analysis, Macroeconomic Modeling, and Forecasting.

Faculty Course responsibilities:

Even though the forecasting faculty will teach different courses in different years depending on availability and other responsibilities, and sometimes courses will be taught jointly, the above-mentioned faculty members have agreed to take responsibilities of specific forecasting courses in the following way:

Eco 519: Economic Surveys and Forecasting (Dr. Lahiri, Dr. Xu)
Eco 520: Quantitative Methods I (Dr. Mirer, Dr. Kim)
Eco 521: Quantitative Methods II (Dr. Kwiatkowski, Dr. Kinal)
Eco 525: Time Series and Forecasting (Dr. Kinal, Dr. Kim, Dr. Xu)
Eco 529: Forecasting in Public Sector (Dr. Lahiri, Mr. Megna, Dr. Xu, Dr. Boyd)

Not included above are the responsibilities of a new faculty member, to join the department in Fall 2004.

Leadership:

Professor Kajal Lahiri (http://www.albany.edu/~klahiri/), an internationally recognized forecasting expert and a member of the editorial boards of *International Journal of Forecasting, Journal of Econometrics*, and *Journal of Business Cycle Measurement and Analysis*, has agreed to spearhead the departmental effort to set up the certificate program and teach some of the core forecasting courses.

IV. Prospective Students

The Certificate is designed primarily to attract local professionals working in businesses and government agencies and graduate students in the M.A. program in economics. A significant proportion of the professionals lack formal training in modern forecasting techniques. The availability of the Certificate will provide them the opportunity to enhance their knowledge and skill base in the rapidly changing workplace.

The certificate will enhance our ability to attract students, nationally and internationally, to our M.A. program. In our recruiting students for the M.A. program, we are giving special attention to our economic forecasting area of concentration. Students in this concentration will fulfill the requirements for the certificate as they fulfill the general and concentration requirements for the M.A.

The department anticipates that the academic quality of the local professionals and M.A. students that we will be able to attract will be quite high. This expectation is based on our experience in running our graduate programs and on our relationships with various state agencies and the local chapter of the American Statistical Association. In addition to the general University requirements for admission to graduate study, applicants must have sufficient background in economics, mathematics, and statistics to undertake the program.

We anticipate enrolling 15-20 students in the first year of the program, with most of these also being enrolled in our M.A. program.

V. Resources and Support Programs

Instructors: As noted previously, the courses for the certificate program will be taught by a combination of department faculty and affiliated professionals. All the courses for the certificate program will be offered an a regular basis as part of our M.A. program, and the modest number of additional enrollments due to the

certificate program will be accommodated with no need for additional instructional resources.

Libraries: The University libraries have more than two million book volumes and subscribe to numerous electronic and hard copy journals. The library also acquires data for use in economics and other fields. These facilities are available to students in the certificate program.

Computing Facilities: The Department has a graduate computer lab equipped with up-to-date personal computers, available for students enrolled in graduate courses. The University has a Unix system for mail, webserving, and general computing needs and it maintains several public access computing rooms equipped with high-end desktop computers and Unix workstations.

Research Institute: The Econometric Research Institute, apart from its current work on transportation forecasting, conducts two economic surveys to monitor the New York economy: a quarterly Blue Chip type survey of economic experts, and a bi-annual establishment survey (http://www.albany.edu/eri/). These research projects are being sponsored by the New York State Division of the Budget, and require the research assistance of large number of undergraduate and graduate students on a regular basis. The Institute will be a natural place for students in the certificate program to get hands-on experience in conducting and analyzing business surveys.

Appendix

Faculty Vitae, pages 7–73

Kajal Lahiri
Terrence Kinal
Thad Mirer
Jae-Young Kim
Donald J. Boyd
Denis Kwiatkowski
Robert L. Megna
Qiang Xu