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Szkoła Główna Handlowa w Warszawie

Program

THE SECOND INTERNATIONAL WORKSHOP

Advanced Analytics and Data Science

Warsaw School of Economics, 14 October 2014

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Warsaw School of Economics
Building C
al. Niepodległości 128, 02-554 Warszawa

Distinguished Participants, Leadies and Gentelemen

The Analyst Community of the Warsaw School of Economics has a great pleasure and honor to welcome you to the Second International Workshop "Advanced Analytics & Data Science". This unique event for academic and business leaders aims to present the challenges in implementing effective programs for educating professionals skilled in analytics, programming and business competences necessary to meet the criteria for being a data scientist. The workshop is organized by the Warsaw School of Economics (Collegium of Economic Analyses – Institute of Statistics and Demography - Event History and Mutilevel Analysis Unit) in cooperation with SAS Institute, under the honorary patronage of Professor Marek Rocki – Head of the Polish Accreditation Committee.

We are living in times when such terms as Big Data, Data Science and Business Analytics are very hot topics and the role of analytics constantly grows and brings measurable results. A quote from the white paper published by SAS Institute: *„Manage the Analytical Life Cycle for Continuous Innovation. From Data to Decision."* (SAS 2013, No. 106179, p.1) shows the importance of deploying analytic insight into day to day business operations:

"Analytical models are at the heart of critical business decisions – for finding new opportunities or managing uncertainty and risks. So dozens, or even hundreds, of predictive models should be increasingly used in real-time decision making and in operational production systems. These models should be treated as the high-value organizational assets that they are. They must be created using robust and industrial-strength processes, and managed for optimal performance through the life cycle. IT and analytic teams need a repeatable and efficient process and a reliable architecture for creating and developing predictive analytics models into production systems. In short, they must operationalize analytics".

The complex process of managing the analytical life cycle includes the following stages: defining the subject scope, preparing the data, exploring the data, preparing the model, validating it, preparing its documentation, utilizing it, and finally monitoring and assessing its quality. We can say that quality, speed and effectiveness of modelling in the era of Big Data, described by 5V's (Volume, Velocity, Variety, Veracity, Value), is both "daily bread" and "great challenge".

In response to this challenge it is very important to have programs in place for educating future professionals in a complex way and prepare them to effectively perform and successfully manage the analytical life cycle. Partnerships fostered between companies and universities are crucial in ensuring that the next generation of business analysts is well educated and equipped with industry-specific skills. The importance of this topic will be emphasized during the discussion panel: "Models of cooperation between science and business".

We are pleased to welcome our distinguished speakers, representing both academic and business leaders from Poland, Europe and USA. We hope that the conference provides stimulating discussion, networking and cooperation opportunities!

Ewa Frątczak, Ph.D.

Professor of the Warsaw School of Economics – SGH

Welcome to the Second International Workshop
"Advanced Analytics & Data Science"

Honorary Patronage

Conference Host

Date

14 October 2014
9.00 – 16.00

Conference Venue

Warsaw School of Economics
Aula I, Building C
al. Niepodległości 128
02-554 Warszawa

Contact

If you have any questions, please contact:
seminarium@spl.sas.com

The second edition of the International Workshop "Advanced Analytics & Data Science" is an event gathering academic and business leaders to discuss the **challenges regarding analytically-focused educational programs** designed to address real-world business needs. Over 150+ practitioners from industry and academia will meet to share knowledge, experience and best practices.

The conference is organized by the **Warsaw School of Economics** (Collegium of Economic Analyses – Institute of Statistics and Demography - Event History and Multilevel Analysis Unit) under the honorary patronage of the **Chairman of the Polish Accreditation Committee – prof. Marek Rocki**.

KEYNOTE ADDRESS

Prof. Krzysztof Jajuga

Professor, Department of Financial Investments and Risk Management, Wrocław University of Economics

The keynote will provide a systematic review of data analytical approaches in financial theory and practice.

Prof. Goutam Chakraborty

Professor, Department of Marketing, Oklahoma State University

The talk will address the typical challenges faced by academicians in starting up courses, certificates and degrees related to topics such as data mining, analytics, data science etc.

PANEL DISCUSSION

Following last year's success, the conference will end with a panel discussion. The panelists - prominent academics and industry experts - will discuss and debate **"Models of cooperation between science and business"**.

WORKSHOP INFORMATION

Registration and Information Desk

The Registration and Information Desks will be staffed throughout conference hours.

Badges

Workshop badges must be worn at all times to be admitted into sessions.

Evaluation Questionnaire

In order for us to plan and develop future events we would be grateful if you could spare a few minutes to fill in the Workshop Evaluation Questionnaire. Please submit the completed questionnaire to the Reception Desk before the end of the event. In return for your time, you will receive a free gift as a token of our gratitude.

8:00 – 9:00	**Conference Registration**
9:00 – 9:10	**Welcome Address Speeches:** Prof. Janina Jóźwiak *Director of the Institute of Statistics and Demography, Warsaw School of Economics* Prof. Joanna Plebaniak *Dean of the Collegium of Economic Analyses, Warsaw School of Economics* Prof. Marek Rocki *President of the Polish Accreditation Committee, Professor, Warsaw School of Economics*
9:10 – 10:00	**Data Analysis in Finance – review of approaches and tendencies** Prof. Krzysztof Jajuga *Professor, Department of Financial Investments and Risk Management, Wrocław University of Economics*
10:00 - 10:30	**How to be a Data Scientist Using SAS®** Chuck Kincaid *Senior Engagement Director, Business Intelligence & Analytics Practice, Experis*
10:30 - 11:00	**Data everywhere ... but skilled talent is scarce** Dr Iga Sikorska *Assistant Professor, Institute of Statistics and Demography, Warsaw School of Economics, Senior Industry Consultant, SAS Institute*
11:00 - 11:30	**Break**
11:30 - 12:20	**Part 1 Title: Applications of Text Analytics and Sentiment Mining** **Part 2 Title: Setting up an Academic Program in Data Mining and Analytics** Prof. Goutam Chakraborty *Professor, Department of Marketing, Oklahoma State University*
12:20 - 13:00	**What drives the need for Data Science? Major trends that shape the future of business and technology** Dr Carsten Bange *Founder and CEO, Business Application Research Center – BARC GmbH*
13:00 - 13:45	**Lunch**
13:45 - 14:15	**Joint modeling for longitudinal measures and time-to-event-data: application to genetic study** Prof. Andrzej Gałecki *Research Professor, Division of Geriatric Medicine, Department of Internal Medicine and Institute of Gerontology University of Michigan Medical School*
14:15 - 14:45	**OCEAN – addressing the challenges of data-intensive research** Prof. Marek Niezgódka *Director, Interdisciplinary Centre for Mathematical and Computational Modelling, University of Warsaw*
14:45 - 15:00	**Models of cooperation between science and business based on exemplary projects of the Interdisciplinary Centre for Mathematical and Computational Modelling, University of Warsaw** Dr Łukasz Bolikowski *Assistant Professor, Interdisciplinary Centre for Mathematical and Computational Modelling, University of Warsaw*
15:00 - 15:45	**Panel Discussion: Models of cooperation between science and business** Prof. Włodzisław Duch *Under-Secretary of State, Ministry of Science and Higher Education* Prof. Krzysztof Jajuga *Professor, Department of Financial Investments and Risk Management, Wrocław University of Economics* Prof. Joanna Plebaniak *Dean of the Collegium of Economic Analyses, Warsaw School of Economics* Prof. Marek Rocki *President of the Polish Accreditation Committee, Professor, Warsaw School of Economics* Dr Iga Sikorska *Assistant Professor, Institute of Statistics and Demography, Warsaw School of Economics, Senior Industry Consultant, SAS Institute* Adam P. Świrski *Vice-President of the Management Board, Bank Gospodarstwa Krajowego*
15:45 - 16:00	**Closing Remarks** Prof. Ewa Frątczak *Head of Event History and Multilevel Analysis Unit, Warsaw School of Economics*
16:00	**Networking Coffee**

9:00 – 9:10

Welcome Address Speeches:

Prof. Janina Jóźwiak

Director of the Institute of Statistics and Demography, Warsaw School of Economics

Prof. Joanna Plebaniak

Dean of the Collegium of Economic Analyses, Warsaw School of Economics

Prof. Marek Rocki

President of the Polish Accreditation Committee, Professor, Warsaw School of Economics

9:10 – 10:00

Opening Lecture:

Data Analysis in Finance – review of approaches and tendencies

Prof. Krzysztof Jajuga

Professor, Department of Financial Investments and Risk Management, Wrocław University of Economics

This talk will provide a systematic review of data analytical approaches in financial theory and practice, as well as an evaluation of these approaches according to the following taxonomy criteria:

- Type of data (e.g. time series, cross-sectional data)
- Type of quantitative approach (stochastic approach, data analytical approach)
- Type of financial problem

In addition, emphasis will be put on two "newly emerged" types of data and their occurrence in financial practice:

- Big Data
- Ultra High Frequency Data, given as time series of the frequency higher than one millisecond

Suitability of classical and new approaches in analyzing these types of data will be discussed.

10:00 - 10:30

Presentation:

How to be a Data Scientist Using SAS®

Chuck Kincaid

Senior Engagement Director, Business Intelligence & Analytics Practice, Experis

The role of the Data Scientist is the viral job description of the decade. And like LOLcats, there are many types of Data Scientists. What is this new role? Who is hiring them? What do they do? What skills are required to do their job? What does this mean for the SAS programmer and the statistician? Are they obsolete? And finally, if I am a SAS user, how can I become a Data Scientist? Come learn about this "job of the future" and what you can do to be part of it.

Prof. Krzysztof Jajuga

Professor, Department of Financial Investments and Risk Management, Wrocław University of Economics

Professor Jajuga holds an Honorary Doctorate of Cracow University of Economics and Honorary Professorship at Warsaw University of Technology. He has taught courses in quantitative methods in finance, financial markets, financial investments and risk management in numerous programs in Poland and other countries (China, Germany, France, Sweden). He is editor-in-chief of Argumenta Oeconomica, a scientific journal listed by Journal of Citation Reports. In addition, he serves on the editorial board of the international Journal of Risk Management in Financial Institutions.

Chuck Kincaid

Senior Engagement Director, Business Intelligence & Analytics Practice, Experis

Chuck is the Practice Manager for Experis Business Intelligence and Analytics (formerly known as COMSYS). He has Computer Science and Statistics degrees from Kansas State University and PhD work in Statistics at the University of Florida. Chuck has been with Experis since 1999 and since 2002 he has managed an eclectic team of analytics professionals in their Kalamazoo Center of Excellence. This group has been providing Business Intelligence and Analytics services to almost every industry since the early 90's. Chuck regularly speaks at SAS User Groups, the Joint Statistical Meetings and other events. His personal interests are in analytics talent, analytics infrastructure, education and visualization.

10:30 - 11:00

Presentation:

Data everywhere... but skilled talent is scarce

Dr Iga Sikorska

Assistant Professor, Institute of Statistics and Demography, Warsaw School of Economics,
Senior Industry Consultant, SAS Institute

The key to succeeding in business is understanding your customers' needs better than anyone else. The same applies to successful educational institutions. Companies and students expect graduate schools to train future leaders capable of extracting value form vast quantities of data. The goal of modern, leading-edge educational programs is to provide students with the knowledge and skills needed to apply complex methods and tools for large-scale data modeling.

11:00 - 11:30 **Break**

11:30 - 12:20

Keynote Presentation:

Part 1 Title: Applications of Text Analytics and Sentiment Mining

Prof. Goutam Chakraborty

Professor, Department of Marketing, Oklahoma State University

The proliferation of textual data in business is overwhelming. Unstructured textual data are being constantly generated via call center logs, emails, documents on web, blogs, tweets, customer comments, customer reviews and so on. While the amount of textual data are increasing rapidly, businesses' ability to summarize, understand and make sense of such data for making better business decisions remain challenging.

Dr Iga Sikorska

Assistant Professor, Institute of Statistics and Demography, Warsaw School of Economics
Senior Industry Consultant, SAS Institute

Iga Sikorska is Assistant Professor of Statisitics at the Warsaw School of Economics. As teacher, she proved to be an effective leader able not only to articulately explain complex statistical concepts, but also inspire students to share her passion for analytics. As business consultant and lecturer, she has collaborated with analysts from numerous industries, including healthcare, banking, insurance, and telecommunications. She contributed her vision and enthusiasm to troubleshoot business problems in various fields and translate them into analytically supported solutions. She holds a degree from the Institute for Advanced Analytics NC SU, USA.

Prof. Goutam Chakraborty

Professor, Department of Marketing, Oklahoma State University

Dr Goutam Chakraborty is the director of Graduate Certificate in Business Data Mining and professor of marketing at Oklahoma State University. He has held managerial positions with a subsidiary of Union Carbide, USA and with a subsidiary of British American Tobacco, UK. In addition to his academic responsibilities, he provides consulting services on issues related to developing business analytics capabilities, digital business strategy, building and managing customer relationships. Companies such as Aetna, Mercruiser, Thrifty Rent-A-Car, Berendsen Fluid Power, Globe Life Insurance, Vanguard Realtors, Hilti, Love's Travel Stops and others have used his consulting services. At Oklahoma State University, he teaches business analytics, data mining and CRM applications, advanced data mining, database marketing, and marketing research to masters and Ph.D. students.

Goutam is an internationally known expert in the field of data mining and analytics and has presented numerous programs and workshops to executives, educators, and research professionals in the U.S., Europe, Asia, Australia and Middle East. He has won numerous teaching awards including SAS® Distinguished Professor Award from SAS Institute, Regents Distinguished Teaching Award at OSU; Outstanding Direct Marketing Educator Award, from the DMEF, New York; Outstanding Marketing Teacher Award, from the Academy of Marketing Science, Coral Gables, Florida.

Goutam's research has been published in many scholarly journals such as Journal of Interactive Marketing, Journal of Advertising Research, Journal of Advertising, Journal of Business Research, and Industrial Marketing Management. He coauthored two books: Text Mining and Analysis: Practical Methods, Examples, and Case Studies Using SAS® and Contemporary Database Marketing: Concepts and Applications. In addition, Goutam has served on the editorial review board of Journal of Business Research and Journal of Academy of Marketing Science. He has chaired the national conference for direct marketing educators in 2004 and 2005 and co-chaired the M2007 data mining conference. Goutam serves as a member of SAS® Customer Analytics Advisory Board, and JMP® Discovery Summit Steering Committee.

This presentation takes a quick look at how to organize, analyze textual data for extracting insightful customer intelligence from large collection of documents and using such information for improving business operations and performance. Multiple business applications of case studies using real data demonstrating applications of text analytics and sentiment mining using SAS® Text Miner and SAS® Sentiment Analysis Studio will be presented.

Part 2 Title: Setting up an Academic Program in Data Mining and Analytics

Prof. Goutam Chakraborty

Professor, Department of Marketing, Oklahoma State University

Many universities around the world are either starting or already started to provide courses, certificates and degrees related to topics such as data mining, analytics, data science and so on. This part of the talk will address the typical challenges faced by academicians in starting up such programs. The history, architecture and evolution of the highly successful "certificate programs in data mining and analytics" at Oklahoma State University will also be described in details.

12:20 - 13:00

Presentation:

What drives the need for Data Science? Major trends that shape the future of business and technology.

Dr Carsten Bange

Founder and CEO, Business Application Research Center – BARC GmbH

Advanced Analytics and Data Science are in high demand, but what fuels this demand and why is it important for companies (and interesting for students) to invest in these capabilities? The presentation identifies some major drivers for business and technology advancements that lead not only to massive data production but the increasing need to analyse this data for competitive advantage. The expectations on Data Scientist in this regard are high – possibly too high for a single person to have all necessary skills from business understanding to statistics and programming. This leads to the creation of Data Science teams that cannot only build great models but also care about supporting the business in integrating and operationalizing analysis into business processes.

Dr Carsten Bange

Founder and CEO, Business Application Research Center – BARC GmbH

Dr. Carsten Bange is founder and managing director of the Business Application Research Center (BARC), an independent software market analyst and IT consulting company he founded in 1999. BARC offers strategic advice in business software and services decisions, a portfolio of in-depth software evaluations, conferences, consulting and market research that enables companies across Europe to make better technology decisions to enable datadriven enterprises. BARC is part of the CXP group, the leading analyst group for business software in Europe with a presence in 7 countries. Dr. Bange holds a PhD in management information systems, is a frequent speaker at IT conferences and seminars and serves as an analyst and consultant on business intelligence and data management strategy, architecture and technology selection for more than 15 years.

Prof. Andrzej Gałecki

Research Professor, Division of Geriatric Medicine, Department of Internal Medicine and Institute of Gerontology, University of Michigan Medical School

Andrzej Gałecki is a Research Professor in the Division of Geriatric Medicine, Department of Internal Medicine and Institute of Gerontology at the University of Michigan Medical School, and is Research Scientist in the Department of Biostatistics at the University of Michigan School of Public Health. He earned his M.Sc. in applied mathematics (1977) from the Technical University of Warsaw, Poland, and an M.D. (1981) from the Medical University of Warsaw. In 1985 he earned a Ph.D. in epidemiology from the Institute of Mother and Child Care in Warsaw (Poland). He is a member of the Editorial Board of the Open Journal of Applied Sciences. Since 1990, Dr. Gałecki has collaborated with researchers in gerontology and geriatrics. His research interests lie in the development and application of statistical methods for analyzing correlated and over-dispersed data. He developed the SAS macro NLMEM for nonlinear mixed-effects models, specified as a solution to ordinary differential equations. He also proposed a general class of variance-covariance structures for the analysis of multiple continuous dependent variables measured over time. This methodology is considered to be one of the first approaches to joint models for longitudinal data.

13:00 - 13:45

Lunch

13:45 - 14:15

Presentation:

Joint modeling for longitudinal measures and time-to-event-data: application to genetic study

Prof. Andrzej Gałecki

Research Professor, Division of Geriatric Medicine, Department of Internal Medicine and Institute of Gerontology, University of Michigan Medical School

Longitudinal studies typically involve repeated measures of multiple outcomes measured on different, possibly censored, scales. Many classical statistical methods for data arising from these studies, such as linear and nonlinear mixed effects models or time-to-event analysis, are often focused on a single outcome. Multi-process or joint modeling is an approach which refers to the capability of jointly fitting models to more than one dependent variable, measured over time or for clustered data. In general, this type of model is expressed in terms of sub-models defined for each outcome separately and association sub-models, which tie outcome specific sub-models into one overall model for all outcomes. This presentation will acquaint the audience with thet basic specification of such models and computational aspects. Joint modeling approaches will be illustrated with real data from an international study designed to find genetic determinants of renal function decline measured in terms of glomerular filtration rate and time to end-stage renal disease in patients with Type 1 diabetes.

14:15 - 14:45

Presentation:

OCEAN – addressing the challenges of data-intensive research

Prof. Marek Niezgódka

Director, Interdisciplinary Centre for Mathematical and Computational Modelling, University of Warsaw

Contemporary science undergoes a paradigm shift towards data-intensive scientific discovery. Unprecedented availability of data, new algorithms and methods of data analysis, as well as growing processing power have created new opportunities, but also new challenges. New approaches to big data analytics are required, as are new sets of skills and competencies. ICM has recently launched OCEAN, a research data centre with world-class infrastructure (hardware, software) and interdisciplinary teams of highly-skilled data scientists. OCEAN will be capable of addressing the most demanding challenges in modern science, going beyond state-of-the-art in Earth sciences, medicine, health, transport, logistics, public safety, social sciences and many other areas. ICM's mission extends beyond pure and applied research, as the centre collaborates with a range of entities from public and private sectors.

Prof. Marek Niezgódka

Director, Interdisciplinary Centre for Mathematical and Computational Modelling, University of Warsaw

Prof. Marek Niezgódka is the co-founder and director of the Interdisciplinary Centre for Mathematical and Computational Modelling at University of Warsaw. He received his PhD in Mathematics in 1978 from the Warsaw University of Technology, and DSc in Mathematics in 1985 from the University of Augsburg. Fellow of several prestigious organizations, including Alexander von Humboldt Foundation. Member of boards and panels in Polish Academy of Sciences, European Research Council, European Science Foundations, as well as several Directorates-General of the European Commission. His research interests include: mathematical methods for visual modelling and data analysis, applications of new mathematical modelling approaches to decision support in complex systems, and multiscale mathematical and computational models of dynamic developments in distributed and hybrid systems.

Dr Łukasz Bolikowski

Assistant Professor, Interdisciplinary Centre for Mathematical and Computational Modelling, University of Warsaw

Founder and leader of the Applied Data Analysis Laboratory at ICM, University of Warsaw – an R&D group specialising in large-scale, machine-assisted analysis of heterogeneous data. Received his PhD in Computer Science in 2011 from the Polish Academy of Sciences. Expert of the OECD, European Commission, Polish National Centre for Research and Development, and Polish Ministry of Science and Higher Education. Since 2002 with ICM, University of Warsaw, where he has worked on diverse projects, such as: high-performance computing, mathematical modeling, air transport consulting, enterprise software development, scholarly communication.

14:45 - 15:00

The Panel's Introductory Lecture:

Models of cooperation between science and business based on exemplary projects of the Interdisciplinary Centre for Mathematical and Computational Modelling, University of Warsaw

Dr Łukasz Bolikowski

Assistant Professor, Interdisciplinary Centre for Mathematical and Computational Modelling, University of Warsaw

As we evolve into knowledge-based economy, academia and industry become increasingly interdependent. Thanks to their symbiotic relationship, industry taps into scarce talent pools (e.g. data scientists), while academia gets alternate funding streams and profits from implementing research results in real-world scenarios. European policy-makers – national governments and the European Commission – are well-aware of the benefits of industry-academia co-operation and are creating incentives for technology and knowledge transfer. In this introduction, I will briefly present several case studies of successful co-operations between the Interdisciplinary Centre for Mathematical and Computational Modelling (ICM) and our business partners. The panel will then discuss various aspects of industry-academia partnerships, including, but not limited to: diverse funding models, intellectual property (co-)ownership, privacy issues (e.g. handling of sensitive data), common misconceptions, and incentives for co-operation.

15:00 - 15:45

Panel Discussion:

Models of cooperation between science and business

Prof. Włodzisław Duch

Under-Secretary of State, Ministry of Science and Higher Education

Prof. Krzysztof Jajuga

Professor, Department of Financial Investments and Risk Management, Wrocław University of Economics

Prof. Joanna Plebaniak

Dean of the Collegium of Economic Analyses, Warsaw School of Economics

Prof. Marek Rocki

President of the Polish Accreditation Committee, Professor, Warsaw School of Economics

Dr Iga Sikorska

Assistant Professor, Institute of Statistics and Demography, Warsaw School of Economics, Senior Industry Consultant, SAS Institute

Adam P. Świrski

Vice-President of the Management Board, Bank Gospodarstwa Krajowego

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PANELISTS

Prof. Włodzisław Duch, Ph. D.

Under-Secretary of State, Ministry of Science and Higher Education

He was granted the title of professor in 1997. Apart from theoretical physics and applied computer sciences he also works in the field of cognitive sciences, neuro-cognitive computer sciences and philosophy of mind.

He is the author or co-author of over 300 publications in specialist magazines, co-editor of over 20 books, member of numerous scientific societies and publishing councils of over 20 international specialist magazines. He worked, among other places, at the University of Southern California in Los Angeles (1980-82), Max-Planck Institutes of Astrophysics and Psychology in Munich (1984-2001), several universities in Japan, Nanyang Technological University in Singapore (2003-2008, 2010-2012) and other educational institutions in Europe and USA. He was the president of the European Neural Network Society for two terms, he is a Fellow Member of the International Neural Network Society. He was the expert for FP5-FP7 European Union Science Programmes, member of 3 committees at the Polish Academy of Science: Computer Physics; Computer Sciences (Automatics, Robotics, Neural Networks and Fuzzy Logic), and, from 2007, the Committee of Neurobiology. Since 2012 he has been the scientific research and computerization vice-chancellor at the Mikołaj Kopernik University.

15:45 - 16:00

Closing Remarks

Prof. Ewa Frątczak

Head of Event History and Multilevel Analysis Unit, Warsaw School of Economics

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In the Ministry of Science and Higher Education, prof. Włodzisław Duch is responsible for computerization, including the POL-on system, and matters related to science and large investments in research infrastructure. Prof. Duch is also working on the implementation of procedures used for verifying applications for financing statutory activities with public science funds, as well as the substantive verification of such activities. On behalf of the Minister of Science and Higher Education he oversees the National Centre for Research and Development, National Science Centre, National Information Processing Institute, and Research and Academic Computer Network.

Prof. Joanna Plebaniak

Dean of the Collegium of Economic Analyses, Warsaw School of Economics

Joanna Plebaniak is Professor of Economics-Econometrics in the Institute of Econometrics at the Warsaw School of Economics. Her areas of expertise include: applied econometrics, empirical corporate finance, and fundamental analysis. She is the author of numerous articles, monographs and books, including "Stock exchange index as a linear econometric model" published in 2002 and "Systems of linear equations and boarding matrices" published in 2011.

Prof. Marek Rocki

President of the Polish Accreditation Committee, Professor, Warsaw School of Economics

Graduate of the Main School of Planning and Statistics (now Warsaw School of Economics, abbr. WSE), Professor of Economics-Econometrics at the WSE Institute of Econometrics. Senator of the Republic of Poland for the VI, VII and VIII term. Worked at the Planning Committee and later on at the Central Planning Office. Academic staff member of WSE since 1981, when he was awarded a doctorate in econometrics. 1990-1996 Vice-Rector, 1996-1999 dean of Graduate Studies, 1999-2005 Rector for 2 consecutive terms, 2005-2011 Dean of the Collegium of Economic Analyses, a unit of the WSE grouping scientists specializing in quantitative methods. In the 1980s and 1990s a lecturer at Collegium Civitas and the Białystok branch of the University of Warsaw. In the years 2005-2006 head of the Civil Service Council. Since 2003 - Chairman of the Executive Board of the Polish University Sports Association. Since 2008 – Chairman of the Polish Accreditation Committee.

Adam P. Świrski

Vice-President of the Management Board, Bank Gospodarstwa Krajowego

Adam P. Świrski graduated from the Banking Academy in Vienna and studied at the Institute of Applied Linguistics at the University of Warsaw. He also completed a double-degree post-graduate MBA programme at the University of Minnesota and the Warsaw School of Economics. He has almost 20 years of experience in banking, gained in managerial positions in leading Polish financial institutions. Prior to becoming Vice-President and Chief Risk Officer at Bank Gospodarstwa Krajowego, he was responsible for risk management at the Deutsche Bank Group in Poland (2009-2013) and HSBC Bank Polska S.A. (2007-2009). Between 2002 and 2007 he held the position of Director at the Department for Credit Analysis and Monitoring in the Area of Large Companies at Bank BPH S.A. Before that he worked at Bank PBK S.A. and Bank Austria Creditanstalt S.A. Between 2009 and 2013, he served as the Chairman of the Basel Committee on Banking Supervision in Poland.

MODERATOR

Krzysztof Frydrychowicz

Krzysztof Frydrychowicz is a technology and business media expert, co-founder of Infotarget consulting services company. Former editor-in chief at Computerworld, he held several managing positions at IDG Poland, the largest technology media company in Poland. Krzysztof Frydrychowicz holds a degree in law from the University of Warsaw.

The Warsaw School of Economics

The Warsaw School of Economics (SGH) is the oldest university of economics in Poland. Statistically every third economist in Poland in the 20. century graduated from the School. Currently there are about eleven thousand BA, MA and Ph.D. enrolled and every year about two thousand graduate from the School. They find employment in banks, financial institutions, consulting firms and multinational companies.

Address:	al. Niepodległości 162, 02-554 Warszawa
Rector:	Professor Tomasz Szapiro
Founding year:	1906

The Warsaw School of Economics offers several study programs on bachelor's and master's levels in Polish and English, as well as a choice of doctoral studies, over 130 postgraduate courses and two MBA programs. As the only university in Poland the Warsaw School of Economics is a member of CEMS Global Alliance in Management Education, which includes 29 business schools from around the world along with their corporate partners.

The number of students, including postgraduate and Ph.D. students:

- 15000

Number of lecturers:

- 732

Accreditations:

- International Quality Accreditation CEEMAN
- CeQuInt by European Consortium for Accreditation in higher education (ECA) for International Economics
- ACCA accreditation for Finance and Accounting

Membership in international organizations:

- CEMS – Global Alliance in Management Education
- European University Association
- Partnership in Management
- CEEMAN

The Collegium of Economic Analysis (CEA)

The Collegium of Economic Analysis (CEA) of Warsaw School of Economics (SGH) provides research in the field of macro- and microeconomics, economic policy, mathematical economics, financial and insurance mathematics, econometrics and decision making theory, statistics and demography, operational research, information systems in business and allied fields. The Collegium offers Doctoral Studies in part-time and full-time mode in the field of economics, with particular consideration of the theory of economy, statistics, demography, information systems in business, econometrics, operational research, economic growth and business cycle and economic policy.

CEA is the best economics research unit in Poland! As a result of categorization of Polish research units in the year 2013, the Collegium of Economic Analysis of SGH has been recognized as the best unit in the field of economics, receiving in this field the most points and gaining the prestigious A+ category.

The Structure of the CEA:

- Institute of Statistics and Demography
- Institute of Information Systems and Digital Economy
- Institute of Econometrics
- Research Institute of Economic Development
- Department of International Comparative Studies
- Department of Economics I
- Department of Mathematical Economics
- Department of Development Economics and Economic Policy
- Department of Quantitatives Economics

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WWW:	www.sgh.waw.pl/KAE

Authorities of the Collegium of Economic Analysis

Prof. Joanna Plebaniak
The Dean of the CEA

Prof. Beata Czarnacka-Chrobot
The Vice-Dean of the CEA

International scientific cooperation of the CEA:

- OECD,
- The European Association for Population Studies (EAPS)
- EUROSTAT
- The International Statistical Institute (ISI)
- The International Institute for Applied Systems Analysis (IIASA)
- The International Union for the Scientific Study of Population (IUSSP)
- University Leicester (Great Britain)
- KU Louvain (Belgium)
- University of Ottawa (Canada)
- Universita „Luigi Bocconi" (Italy)
- Universite Paris I (Sorbonne, France)
- University of Minnesota (USA)
- University Strathclyde Glasgow (Great Britain),
- CNR - IAMI Milan (Italy)
- Common Software Measurement International Consortium (COSMIC)
- Centre for International Research on Economic Tendency Surveys (CIRET)

Important News:

Advanced Analytics – Big Data

New field of study "Advanced Analytics – Big Data" is offered at the Warsaw School of Economics from the middle of academic year 2014/15.

Journals of the CEA

- CEA Annals (Roczniki Kolegium Analiz Ekonomicznych): www.rocznikikae.sgh.waw.pl
- National Economy (Gospodarka Narodowa): www.gospodarkanarodowa.sgh.waw.pl
- Papers and Studies of Research Institute for Economic Development SGH

The Institute of the Statistics and Demography (ISD)

The Institute of the Statistics and Demography (ISD) is in the group of 18 leading institutes of demography taking part in the project Population Europe: The European Population Partnership. The aim of that project is to build up the research cooperation, to share the experience as well as to initiate the discussions which will help to spread the knowledge about the new demography of Europe and its consequences.

Professor Janina Jóźwiak
Director of the Institute of Statistics and Demography

Former Rector of the Warsaw School of Economics, 1993-1999. Member of the Council of the National Science Centre (NCN) and chairperson of the Committee for Social Sciences and Humanities of the Council.

Honorary President of the European Association for Population Studies, Honorary Chairperson of the Committee for Demography, Polish Academy of Sciences, President of the Association for Management Education, member of several other scientific societies.

Expert in international institutions (i.a., European Research Council and European Commission). Vice-president of the Council of Advisors, Population Europe- European Population Partnership, member of the Scientific Board, European Doctoral School of Demography, member of the Advisory Board, Centre for Demographic Research, Barcelona, member of the Network Board NORFACE. Research interests: demography (modeling population dynamics, analysis of the socio-economic context of demographic behaviours and of consequences of changing demographic structures), higher education systems, research management.

Recent international projects of the ISD:

- GGP – Generations and Gender Programme, launched in 2000. GGP participants run the three-waves panel survey (Generations and Gender Survey -GGS) on family-related behaviours, relationships between generations and changes in the social roles of men and women, taking into account economic, social and cultural contexts.
- SHARE – Survey of Health, Ageing and Retirement in Europe, lunched in 2004. The programme participants run panel surveys on health, socio-economic status and social and family networks of individuals aged 50 or over.
- RECWOWE - Network of Excellence of the Sixth Framework Programme (FP6) on 'Reconciling Work and Welfare in Europe', 2006-2011. The paramount objective of RECWOWE was to create a European research network capable of overcoming the fragmentation of existing research on work and welfare in Europe.
- SAMPLE - Small Area Methods for Poverty and Living Conditions Estimates, FP6, 2008-2011. The aim of the project was to identify and develop new indicators and models for inequality and poverty with attention to social exclusion and deprivation.
- FAMILIES AND SOCIETIES - Changing families and sustainable societies: Policy contexts and diversity over the life course and across generations, FP7, 2013-2017. The project aims to investigate the diversity of family forms, relationships, and life courses in Europe, to assess the compatibility of existing policies with family changes and to contribute to evidence based policy-making.
- AGENTA - Ageing Europe: An application of National Transfer Accounts (NTA) for explaining and projecting trends in public finance, FP7, 2013-2017. The project aims at explaining the past and forecasting the future of taxes and public transfers and services in the light of demographic change in the European Union

International educational projects of the ISD:

The European Doctoral School of Demography

In academic years 2013-2014 and 2014-2015, the location of the EDSD is the Institute of Statistics and Demography, Warsaw School of Economics.

The European Doctoral School of Demography (EDSD) was founded in 2005 on the initiative of the European Association for Population Studies (EAPS). It currently receives the support of 12 universities, and 5 research institutions. The EDSD is open to students of all nationalities with a master's degree. Students will acquire a solid knowledge base on theories and methods in demographic analysis. Teaching is provided by leading international experts in the fields of study covered. Since the School places great importance on both teaching demographic methods and preparing the student for a career in demography, each course will expose the students to a number of guest lecturers discussing their topics of expertise. By the end of the year, EDSD participants will have developed an extensive network of contacts with established researchers from throughout Europe.

The Structure of the Institute of Statistics and Demography:

- Demography Unit
- Applied Statistics Unit
- Social-Demographic and Market Research Centre
- Event History Analysis and Multilevel Analysis Unit

Demography Unit

Head of the Unit: Prof. D. Sc. Irena E. Kotowska

Main fields of research:

- fertility and its determinants
- family and household changes
- health, mortality
- population ageing and its consequences
- modelling of demographic processes
- demographic projections
- interdependencies between demographic and socio-economic processes at the macro and micro levels
- population change and the labour market
- population change and generational transfers
- population-related policy, social policy
- social protection, social insurance and pension systems

Students' Scientific Group on Statistics and Demography

Social-Demographic and Market Research Centre

Head of the Center: Prof. D. Sc. Małgorzata Rószkiewicz

Main fields of research:

- scaling in marketing and market research
- experimental design in marketing research
- market segmentation and selectivity
- analyses and prediction of metrical market phenomena
- multi-factorial approach in modelling individual behaviours
- statistical analysis with missing data
- application of bootstrap methods
- economic psychology and modelling consumer behaviours

Applied Statistics Unit

Head of the Unit: Prof. D. Sc. Tomasz Panek

Main fields of research:

- poverty, social exclusion and inequality measurement
- household living conditions: systems of social indicators (quality of life and standard of living), household welfare measurement, time budget surveys
- small area estimation
- methodology of statistical surveys
- credit risk modeling, validation and calibration of credit rating models, application of survival analysis in credit risk assessment
- application of quantitative methods in monetary policy

Event History Analysis and Multilevel Analysis Unit

Head of the Unit: Prof. D. Sc. Ewa Frątczak

Main fields of research:

- family and individual life course modeling, ageing, family and low fertility
- applied demography, event history analysis, multilevel analysis and mixed models
- cross-sectional, retrospective and prospective surveys
- analysis of mechanism of casuality, studies of parallel careers, parallel processes
- risk assessment in business (insurance, financial and telecommunication markets)
- advanced statistical methods and models, data mining, bayesian modeling, missing data, latent class analysis, scoring models (in cooperation with SAS Institute)

Programs of post-graduate studies

- Statistical Analysis and Data Mining in Business - Level I
- Analysis Academy - Statistical Analysis and Data Mining in Business - Level II

Students' Scientific Group on Business Analysis

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