

Nikolas Tsantas

Curriculum Vitae
April 2019



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Field of Research

Manpower Planning; Optimization in Stochastic Models; Optimal Control Problems; Applications of Markov Chains and Discrete-Time Markov Processes; Computational Markov Chains.

Education

1984 Ph.D. Department of Mathematics, Aristotle University of Thessaloniki.
1981 B.Sc. Department of Mathematics, University of Ioannina.

Academic Positions

2014 – present Professor of Operations Research, University of Patras, Department of Mathematics.
2006 – 2014 Associate Professor, University of Patras, Department of Mathematics.
2003 – 2006 Associate Professor, Aristotle University of Thessaloniki, Department of Mathematics.
1995 – 2003 Assistant Professor, Aristotle University of Thessaloniki, Department of Mathematics.
1988 – 1995 Lecturer, Aristotle University of Thessaloniki, Department of Mathematics.

Other Academic Positions

2002 – 2017 Adjunct Academic Staff, Hellenic Open University, School of Social Sciences.
1988 – 1991 Lecturer, University of Thessaly, Department of Agriculture Crop Production & Rural Environment.
1987 – 1988 Teaching Fellow, Aristotle University of Thessaloniki, Department of Mathematics.

Administrative Positions (Department of Mathematics, University of Patras)

Chairman September 2013 – October 2015.
Vice Chairman September 2011 – August 2013.
Director Graduate Program “Mathematics of Computers and Decision Making”: September 2010 – August 2011, September 2017 – present.
Director Graduate Program “Mathematics and Modern Applications”: September 2009 – August 2013.
Director Section of Probability - Statistics and Operations Research: September 2008 – August 2011, September 2016 – August 2017.
Director Probability - Statistics and Operations Research Lab: September 2008 – August 2012, September 2016 – August 2018.
Member Assembly of Department of Mathematics, Graduate Program Committee, Committee for Quality Control of Department Services, Curriculum Committee, etc.

Teaching and Supervising

Courses Taught

I. University of Patras, Department of Mathematics

- Undergraduate. Mathematical Programming (2006 – present), Operations Research (2006 – present), Selected Topics in Probability and Statistics (2011 – 12, 2017 – 18).

- Graduate. Optimization and Decision Models (2018 – present), Operations Research (2006 – 19), Numerical Optimization (2006 – 08), Stochastic Process (2012 – 14), Case Studies in Decision Sciences (2010 – 11, 2017 – 18), Statistics (2011 – 13), Research Methods in Education (2013 – 14, 2016 – 17).

II. Hellenic Open University, School of Social Sciences

- Undergraduate. Quantitative Methods (2002 – 17).

III. University of Macedonia, Master in Business Administration

- Graduate. Research Methodology (1999 – 2001), Quantitative Methods for Business Decisions (2003 – 11).

IV. Aristotle University of Thessaloniki, Department of Mathematics

- Undergraduate. Mathematical Programming (1987 – 2006), Statistical Methodology – Lab (1987 – 2004), Selected Topics in Probability and Statistics (1990 – 2006).
- Graduate. Deterministic Models in Operations Research (2002 – 05), Statistical Data Analysis I (2002 – 05), Production Models (2003 – 05), Statistical Data Analysis II (2003 – 05).

V. Aristotle University of Thessaloniki, Department of Biology

- Undergraduate. BioStatistics (1988 – 90, 1992 – 2002), Mathematics and Statistics in Biology (2002 – 06).

VI. Aristotle University of Thessaloniki, Department of Chemistry and/or School of Pharmacy

- Undergraduate. Mathematics and Statistics (1988 – 89, 1993 – 97), BioStatistics (2003 – 05).

VII. Aristotle University of Thessaloniki, Department of Physics

- Undergraduate. Operations Research (2003 – 06).

VIII. Aristotle University of Thessaloniki, Department of Physical Education and Sport Science

- Undergraduate. Probability and Statistics (1987 – 88, 1989 - 90), Research Methodology (1987 – 88).

IX. University of Thessaly, Department of Agriculture Crop Production and Animal Science

- Undergraduate. Introduction to Computer Science (1988 – 91), Mathematics (1989 – 90).

Doctoral Theses Supervised

- [1] **DIMITRIOU V.A.** (2009). *New stochastic models of human resource planning and their quantitative analysis*. PhD thesis. Department of Mathematics, Aristotle University of Thessaloniki.

Master Theses Supervised

I. Department of Mathematics, University of Patras, Graduate Program in “Computational and Statistical Data Analytics”.

- 2018 – present: 1 MSc Theses in progress.

II. Department of Mathematics and Department of Computer Engineering & Informatics, University of Patras, Graduate Program in “Mathematics of Computers and Decision Making”.

- 2008 – present: 24 MSc Theses supervised, 4 MSc Theses in progress.

III. Department of Mathematics, University of Patras, Graduate Program in “Mathematics and Modern Applications”.

- 2008 – present: 1 MSc Theses supervised.

IV. Department of Mathematics, Aristotle University of Thessaloniki, Graduate Program in “Statistics and Operations Research”.

- 2002 – 2006: 5 MSc Theses supervised.

Funded Research Projects

- 1981: Manpower Planning Models in the Greek Higher Education.
- 1988: Distribution of the Doctors in the National Greek Health System.
- 1994: Mobility in the Greek Higher Education.
- 1995: Statistical Evaluation of Natura 2000 Network in Greece.
- 1998: Research for Career Services Office.
- 1999: Research Methods in Mathematics Teacher Education.

Talks and Conference Presentations (International)

- [1] *7th Balkaniade on Mathematics for students and young researchers. Sofia, July 1984 -honoured.*
- [2] **TSANTAS N.** (1993). Recent Developments in Stochastic Modeling of Non-Homogeneous Markov System. *6th International Symposium on Applied Stochastic Models and Data Analysis. Chania, May 1993.*
- [3] **GEORGIU A.C.** and **N. TSANTAS** (1993). Periodicity of Markov Models is a Stochastic Environment. *2nd Balkan Conference in Operational Research. Thessaloniki, October 1993.*
- [4] **TSANTAS N.** and **A.C. GEORGIU** (1995). Partial maintainability of a Population Model in a Stochastic Environment. *7th International Symposium on Applied Stochastic Models and Data Analysis. Dublin, June 1995.*
- [5] **GEORGIU A.C.** and **N. TSANTAS** (1997). An Inventory Approach for a Manpower Planning Model. *INFORMS XXXIV – EURO XV Joint Conference. Barcelona, June 1997.*
- [6] **GEORGIU A.C.** and **N. TSANTAS** (1999). Incorporating a Training Class in a Markovian Manpower Model. *5th International Conference of the Decision Sciences Institute. Athens, July 1999.*
- [7] **GEORGIU A.C.** and **N. TSANTAS** (2000). Parallel Recruitment and Training Policies for a Hierarchical Manpower Model. *EURO XVII. Budapest, July 2000.*
- [8] **TSANTAS N.** and **A.C. GEORGIU** (2001). Sequences of n-step interval maintainable sets of a population model in a stochastic environment. *EURO XVIII. Rotterdam, July 2001.*
- [9] **TSANTAS N.** and **V.A. DIMITRIOU** (2009). Embracing training and recruiting capabilities in Markov manpower planning modeling. *EURO XXIII. Bonn, July 2009.*
- [10] **TSANTAS N.** and **V.A. DIMITRIOU** (2010). Control aspects in an enhanced manpower planning model. *EURO XXIV. Lisbon, July 2010.*
- [11] **DIMITRIOU V.A., A.C. GEORGIU** and **N. TSANTAS** (2011). Modeling intra and inter-department mobility via multivariate Markov process. *10th Balkan Conference in Operational Research. Thessaloniki, September 2011.*
- [12] **DIMITRIOU V.A., A.C. GEORGIU** and **N. TSANTAS** (2011). Intra and inter-department mobility via multivariate Markov process. *4th International Conference on Markov and Semi Markov Processes and Related Fields. Chalkidiki (Porto Carras), September 2011.*
- [13] **TSANTAS N.** (2013). On the Markovian intra and inter departmental mobility in discrete time. *INFORMS MMXIII – EURO XXVI Joint Conference. Rome, July 2013.*
- [14] **TSANTAS N., A.C. GEORGIU** and **V.A. DIMITRIOU** (2019). Elaboration on the multivariate non-homogeneous Markov manpower system under various conditions and properties. *EURO XXX. Dublin, June 2019.*

Publications

PhD thesis

- [1] **TSANTAS N.** (1984). *Stochastic control in nonhomogeneous Markov systems.* PhD thesis. School of Science, Aristotle University of Thessaloniki. Thesis Advisor: P.-C. G. Vassiliou, Prof.

Books (in Greek)

- [1] **TSANTAS N., P. MOYSIADIS, Th. CHATZIPANTELIS** and **K. BAGIATIS** (1999). *Data Analysis with Statistical Packages, Vol. 1.* Ziti Publications.
- [2] **TSANTAS N.** and **P.-C. G. VASSILIOU** (2000). *Introduction to Operations Research.* Ziti Publications, 3rd ed.
- [3] **VASSILIOU P.-C. G., G. TSAKLIDIS** and **N. TSANTAS** (2001). *Exercises in Operations Research (with solutions), Vol. 1.* Ziti Publications, 4th ed.
- [4] **VASSILIOU P.-C. G., G. TSAKLIDIS** and **N. TSANTAS** (2003). *Exercises in Operations Research (with solutions), Vol. 2.* Ziti Publications, 4th ed.

Refereed research papers

- [1] **VASSILIOU P.-C. G.** and **N. TSANTAS** (1984). Stochastic control in nonhomogeneous Markov systems. *International Journal of Computer Mathematics*, **16**: 139-155.
- [2] **VASSILIOU P.-C. G.** and **N. TSANTAS** (1984). Maintainability of structures in nonhomogeneous Markov systems under cyclic behaviour and input control. *SIAM Journal on Applied Mathematics*, **44**: 1014-1022.
- [3] **VASSILIOU P.-C. G.**, **A.C. GEORGIU** and **N. TSANTAS** (1990). Control of asymptotic variability in non-homogeneous Markov systems. *Journal of Applied Probability*, **27**: 756-766.
- [4] **TSANTAS N.** and **P.-C. G. VASSILIOU** (1993). The non-homogeneous Markov system in a stochastic environment. *Journal of Applied Probability*, **30**: 285-301.
- [5] **TSANTAS N.** and **A.C. GEORGIU** (1994). Periodicity of equilibrium structures in a time dependent Markov model under stochastic environment. *Applied Stochastic Models and Data Analysis*, **10**: 269-277.
- [6] **TSANTAS N.** (1995). Stochastic analysis of a non-homogeneous Markov system. *European Journal of Operational Research*, **85**: 670-685.
- [7] **GEORGIU A.C.** and **N. TSANTAS** (1996). Nonstationary cyclic behavior in Markov systems. *Linear Algebra and its Applications*, **237/238**: 549-578.
- [8] **TSANTAS N.** and **A.C. GEORGIU** (1997). Partial maintainability of a population model in a stochastic environment. *Applied Stochastic Models and Data Analysis*, **13**: 183-189.
- [9] **TSANTAS N.** (2001). Ergodic behavior of a Markov chain model in a stochastic environment. *ZOR --- Mathematical Methods of Operations Research*, **54**: 101-117.
- [10] **GEORGIU A.C.** and **N. TSANTAS** (2002). Modelling Recruitment Training in Mathematical Human Resource Planning. *Applied Stochastic Models in Business and Industry*, **18**: 53-74.
- [11] **SKENDROS P.**, **P. BOURA**, **N. TSANTAS**, **P. DEBRE** and **I. THEODOROU** (2002). Frequency analysis of the CCR5(Delta)32 mutation in patients with Brucellosis. *Scandinavian Journal of Infectious Diseases*, **34**: 944-946.
- [12] **DIMITRIOU V.A.** and **N. TSANTAS** (2009). Prospective control in an enhanced manpower planning model. *Applied Mathematics and Computation*, **215**: 995–1014.
- [13] **DIMITRIOU V.A.** and **N. TSANTAS** (2010). Evolution of a time dependent Markov model for training and recruitment decisions in manpower planning. *Linear Algebra and its Applications*, **433**: 1950-1972.
- [14] **DIMITRIOU V.A.** and **N. TSANTAS** (2011). The Augmented Semi Markov System and its asymptotic behavior. *Applied Stochastic Models in Business and Industry*, **27**: 519-530.
- [15] **DIMITRIOU V.A.** and **N. TSANTAS** (2012). The Augmented Semi Markov System in continuous time. *Communications in Statistics – Theory and Methods*, **41**: 88-107.
- [16] **DIMITRIOU V.A.**, **A.C. GEORGIU** and **N. TSANTAS** (2013). The multivariate non-homogeneous Markov manpower system in a departmental mobility framework. *European Journal of Operational Research*, **228**: 112-121.
- [17] **DIMITRIOU V.A.**, **A.C. GEORGIU** and **N. TSANTAS** (2015). On the equilibrium personnel structure in the presence of vertical and horizontal mobility via multivariate Markov chains. *Journal of the Operational Research Society*, **66**: 993-1006.

Papers in refereed conference proceedings

- [1] **TSANTAS N.** Recent Developments in Stochastic Modelling of a non-homogeneous Markov System, in **JANSEEN J.** and **C.H. SKIADAS** (1993) *Applied Stochastic Models and Data Analysis*. World Scientific, London, pp. 990-996.
- [2] **GEORGIU A.C.** and **N. TSANTAS**. Periodicity of Markov models in a stochastic environment, in **PAPATHANASIOU B.** and **K. PAPARRIZOS** (1994) *Proceedings of the 2nd Balkan Conference in Operational Research Proceedings*. Thessaloniki, pp. 904-910.
- [3] **TSANTAS N.** and **A.C. GEORGIU**. Partial maintainability of a population model in a stochastic environ-

ment, in **McCLEAN S.I.** (1995) *Proceedings of the 7th International Symposium on Applied Stochastic Models and Data Analysis*. Dublin, pp. 599-609.

- [4] **GEORGIU A.C.** and **N. TSANTAS**. Incorporating a Training Class in a Markovian Manpower Model, in **DESPOTIS D.K.** and **C. ZOPOUNIDIS** (1999) *Proceedings of the 5th International Conference of the Decision Sciences Institute*. Athens, pp. 1190-1192.
- [5] **DIMITRIOU V.A., A.C. GEORGIU** and **N. TSANTAS**. Modeling intra and inter-department mobility via multivariate Markov process, in **KOSTOGLU V., G. ARABATZIS** and **L. KARAMITOPOULOS** (2011) *Proceedings of the 10th Balkan Conference on Operational Research*. Thessaloniki, pp. 200-206.

Citations

- Scopus: 140 citations, Scopus h-index: 10.
- Google Scholar: 292 citations, Google Scholar h-index: 11.

Refereeing

European Journal of Operational Research, Communication in Statistics: Theory and Methods, Bulletin of the Greek Mathematical Society, Applied Stochastic Models in Business and Industry, Stochastic Analysis and Applications, British Journal of Applied Science & Technology, etc.