



# Philipp Hungerländer

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*"Mathematics has beauty and romance. It's not a boring place to be, the mathematical world. It's an extraordinary place; it's worth spending time there." - Marcus du Sautoy*

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## Contact

current affiliation **Alpen-Adria-Universität Klagenfurt, Department of Mathematics**  
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## Education

Mar 2012 – **PhD in Economics**,  
Nov 2014 *Alpen-Adria-Universität Klagenfurt.*  
title of thesis **Semidefinite Optimization Approaches to Applications in Facility Layout and Logistics**, *Supervisor: Miguel F. Anjos.*

Feb 2009 – **PhD in Combinatorics and Optimization**,  
Feb 2012 *Alpen-Adria-Universität Klagenfurt.*  
title of thesis **Semidefinite Approaches to Ordering Problems**, *Supervisor: Franz Rendl.*

Oct 2003 – **(Under)Graduate in Business and Law**,  
Oct 2012 *Alpen-Adria-Universität Klagenfurt.*  
title of thesis **The Prices of Anarchy, Information and Cooperation**,  
*Supervisor: Reinhard Neck.*

Oct 2003 – **(Under)Graduate in Mathematics**,  
Feb 2009 *Alpen-Adria-Universität Klagenfurt*, Specializations: Optimization, Game Theory.  
title of thesis **Algorithms for Convex Quadratic Programming**, *Supervisor: Franz Rendl.*

Oct 2003 – **(Under)Graduate in Business Administration**,  
May 2008 *Alpen-Adria-Universität Klagenfurt*, Specializations: Finance, Logistics, Economics.

- title of thesis **Discrete-Time Dynamic Noncooperative Game Theory**,  
*Supervisor: Reinhard Neck.*
- Sep 1995 – **Secondary School**, *BRG Spittal.*  
 June 2003
- Sep 1991 – **Elementary School**, *Weißenstein.*  
 June 1995

## Academic Employment

- since **Senior assistant professor (Assistenzprofessor)**,  
 Sep 2012 Alpen-Adria-Universität Klagenfurt, Department of Mathematics.
- Oct 2014 - **Senior researcher**,  
 Feb 2015 Technische Universität Dortmund, Department of Mathematics.
- Sep 2008 – **Research and teaching assistant (Universitätsassistent)**,  
 Sep 2012 Alpen-Adria-Universität Klagenfurt, Department of Mathematics.
- Aug 2011 - **Researcher**,  
 Oct 2011 École Polytechnique de Montréal, Department of Mathematics.
- Feb 2007 - **Project Assistant (Projektassistent)**,  
 Aug 2008 Alpen-Adria-Universität Klagenfurt, Department of Economics.
- Oct 2006 - **Internship**,  
 Jan 2007 *Robert-Holzmann-Institut, Vienna*, Topic: Dynamic game theory.
- Mar 2006 - **Graduate Assistent**,  
 June 2006 Alpen-Adria-Universität Klagenfurt, Department of Finance.

## Other Employment

- since **Consultant**,  
 Jul 2015 *Satalia, Optimisation Algorithm Company*, Topic: Development of exact methods and heuristics for the dynamic vehicle routing problem of one of the world's largest groceries.
- Jul 2015 – **Consultant**,  
 Feb 2016 *Satalia, Optimisation Algorithm Company*, Topic: Improving timetable optimization at University College London.
- Mar 2007 – **Project Assistent**,  
 Jun 2007 *"Pewag" company*, Topic: Development of a consolidation software.
- Summer 03, **Tennis Instructor**.  
 Summer 02
- Oct 2001 – **Student representative**, BRG Spittal.  
 Sep 2002
- Aug 2001 **Internship**.

## Professional Awards and Recognition

- 2015 **Erwin Schrödinger Fellowship**,  
*Funding for a 1-year stay at the Massachusetts Institute of Technology (MIT).*
- 2015 **Max Kade Fellowship**,  
*Funding for a 1-year stay at the Massachusetts Institute of Technology (MIT),  
Declined due to the Schrödinger Fellowship mentioned above.*
- 2015 **Best Dissertation Award**,  
*Austrian Society for Operations Research, 1<sup>st</sup> Austrian to win this award two times.*
- 2015 **Doctoral degree in Economics under the auspices of the Federal President**,  
*Highest possible distinction for excellent performance in academic studies in Austria,  
8<sup>th</sup> Austrian to achieve this for 2 PhDs.*
- 2014 **Heidelberg Laureate Forum**, Selected participant.
- 2014 **“Audience Award” of the “Long Night of Research”**,  
*Most popular inactive presentation at the Alpen-Adria Universität Klagenfurt.*
- 2012 **Best Dissertation Award**, *Austrian Society for Operations Research.*
- 2012 **Best Dissertation Award**, *Austrian Mathematical Society.*
- 2012 **Doctoral degree in Optimization under the auspices of the Federal President**,  
*Highest possible distinction for excellent performance in academic studies in Austria.*
- 2010 **Award for Excellent Supervision of Talented Pupils**,  
*Austrian Federal Ministry for Transport, Innovation and Technology.*
- 2009 **Kurier High Potential '09**, Finalist.
- 2009 **WiWi Talents Program/Book 2008/2009**, Admission.
- 2008 **Lupe 2008**, Award for excellent science communication.
- 2008 **Award for excellent achievements in the university studies**,  
*Austrian Federal Ministry of Research and Science.*
- Jan 2007 – **Scholarship of the Austrian National Bank**,  
Aug 2008 Research project: "The Macroeconomics of EMU Enlargement".
- 2008 **Award for the best master thesis in Economics**,  
*Alpen-Adria Universität Klagenfurt.*
- 2006 **European Forum Alpbach**, Scholarship holder.
- 2003–2009 **Merit scholarship**,  
*Academic years 2003/04, 2004/05, 2005/06, 2006/07, 2007/08 and 2008/09.*

## Research Publications

### Research Articles in International Journals

- [1] H. and F. Rendl. **A Feasible Active Set Method for Strictly Convex Problems with Simple Bounds.** *SIAM Journal on Optimization*, Vol. 25(3), pp. 1633-1659, 2015.
- [2] H. **The Checkpoint Ordering Problem.** *Optimization*, 2016, accepted.
- [3] H. **Global Bounds for Multi-Row Facility Layout and the Checkpoint Ordering Problem.** *Optimization*, 2016, accepted.
- [4] H. **New Semidefinite Programming Relaxations for the Linear Ordering and the Traveling Salesman Problem.** *Discrete Applied Mathematics*, 2015, accepted.
- [5] H., K. Maier, J. Pöcher and C. Truden. **A New Modelling Approach for Cyclic Layouts and its Practical Advantages.** *International Journal of Production Research*, 2015, accepted.
- [6] H. and M. F. Anjos. **Semidefinite Optimization Approaches to Multi-Row Facility Layout.** *European Journal of Operational Research*, Vol. 245(1), pp. 46–61, 2015.
- [7] H. . **A Semidefinite Optimization Approach to the Target Visitation Problem.** *Optimization Letters*, Vol. 9(8) , pp. 1703-1727, 2015.
- [8] H. . **Single-Row Equidistant Facility Layout as a Special Case of Single-Row Facility Layout.** *International Journal of Production Research*, Vol. 52(5), pp. 1257-1268, 2014.
- [9] M. Chimani and H. . **Multi-Level Verticality Optimization: Concept, Strategies, and Drawing Scheme.** *Journal of Graph Algorithms and Applications*, Vol. 17(3), pp. 329-362, 2013.
- [10] M. Chimani and H. . **Exact Approaches to Multi-Level Vertical Orderings.** *INFORMS Journal on Computing*, Vol. 25(4), pp. 611-624, 2013.
- [11] H. and F. Rendl. **A Computational Study and Survey of Methods for the Single-Row Facility Layout Problem.** *Computational Optimization and Applications*, Vol. 55(1), pp 1-20, 2013.
- [12] H. and F. Rendl. **Semidefinite Relaxations of Ordering Problems.** *Mathematical Programming*, Vol. 140(1), pp 77-97, 2013.
- [13] M. Chimani, H. , M. Jünger and P. Mutzel. **An SDP approach to multi-level crossing minimization.** *Journal of Experimental Algorithmics*, 2012, Vol. 17(3), Article 3.3.

### Research Articles in Refereed Conference Proceedings

- [1] A. Fischer, F. Fischer and H. **A New Exact Approach to the Space-Free Double Row Layout Problem.** *In Operations Research Proceedings 2015*, to appear.

- [2] M.F. Anjos, A. Fischer and H. **Solution Approaches for the Double-Row Equidistant Facility Layout Problem.** *In Operations Research Proceedings 2014*, pp. 17-23, 2016.
- [3] H. and M. F. Anjos. **An Exact Approach for the Combined Cell Layout Problem.** *In Operations Research Proceedings 2012*, pp. 275-281, 2013.
- [4] H. . **A Semidefinite Optimization Approach to the Directed Circular Facility Layout Problem.** *In Proceedings of the 7th IFAC Conference on Manufacturing Modelling, Management, and Control*, pp. 2033-2038, 2013.
- [5] M. Chimani, H. , M. Jünger and P. Mutzel. **An SDP approach to multi-level crossing minimization.** *In Proceedings of Algorithm Engineering & Experiments [ALENEX'2011]*, 2011.

#### Book Chapters and Lecture Notes

- [1] H. and R. Neck. **An algorithmic equilibrium solution for n-person dynamic Stackelberg difference games with open-loop information pattern.** *In: H. David et al.: Computational Methods in Economic Dynamics*, Springer Publishers, pp 197-214, 2010.

#### Preprints and Work in Progress

- [1] H. and M. F. Anjos. **A Semidefinite Optimization Approach to Space-Free Multi-Row Facility Layout.**
- [2] H. and M. F. Anjos. **An Exact Approach for the Combined Cell Layout Problem.**
- [3] H. and F. Rendl. **An Infeasible Active Set Method with Step Size Control for Bound Constrained Convex Problems.**
- [4] M. F. Anjos, A. Fischer and H. . **Solution Approaches for Equidistant Double- and Multi-Row Facility Layout Problems**
- [5] A. Fischer and H. **New Combinatorial Properties of and Models for Row Layout Problems.**
- [6] A. Fischer and H. **The Traveling Salesman Problem with Forbidden Neighborhoods on Grids.**
- [7] A. Fischer, M. Firstein and H. **Optimal Algorithms for an Extended Version of the Knight's Tour Problem.**
- [8] A. Fischer, F. Fischer and H. **New Exact Approaches to Row Layout Problems.**

#### Technical Reports

- [1] H. **A Semidefinite Optimization Approach for the Parallel Ordering Problem.**
- [2] H. **Differential Games: Egoism, Cooperation and Altruism.**

### PhD and Master Theses

- [1] **Semidefinite Optimization Approaches to Applications in Facility Layout and Logistics.** *PhD Thesis Economics*, 2014.
- [2] **Semidefinite Approaches to Ordering Problems.** *PhD Thesis Mathematics*, 2012.
- [3] **The Prices of Anarchy, Information and Cooperation.** *Master Thesis Business and Law*, 2012.
- [4] **Algorithms for Convex Quadratic Programming.** *Master Thesis Mathematics*, 2009.
- [5] **Discrete-Time Dynamic Noncooperative Game Theory.** *Master Thesis Economics*, 2008.

### Grants as Main Project Investigator

- Jul 2015 - **Satalia, Optimisation Algorithm Company,**  
 Oct 2017 *Development of exact methods and heuristics for the dynamic vehicle routing problem of one of the world's largest groceries*, Project financing postdoctoral researchers and PhD and master students for 2.5 years, € 520.000.
- Oct 2015 - **Austrian Federal Ministry of Research and Science,**  
 Oct 2017 *Exact Approaches to Combinatorial Problems in Facility Layout and Logistics*, Research and travel grants for outstanding young researchers, € 11.500.
- Jul 2015 - **Satalia, Optimisation Algorithm Company,**  
 Sep 2015 *Improving timetable optimization at University College London*, Project financing postdoctoral researchers, PhD and master students for six months, € 30.000.
- Jun 2015 **Alpen-Adria Universität Klagenfurt, Department of Mathematics,**  
*Extending Various Strategies for determining Traveling Salesman Tours with forbidden neighborhood with radius  $r = 2$* , Project financing a master student for one month, € 800.
- May 2015 **Alpen-Adria Universität Klagenfurt, Department of Mathematics,**  
*Comparison of Cutting Plane Approaches for the Linear Ordering Problem*, Project financing a master student for one month, € 800.
- May 2014 **Alpen-Adria Universität Klagenfurt, Lakeside Science & Technology Park and Kleine Zeitung,**  
 Publicity poly for recruiting mathematics students, € 11.800.
- Feb 2014 **Alpen-Adria Universität Klagenfurt, Department of Mathematics,**  
*Graphics and computer programs to popularize row-layout problems*, Project financing a master student for one month, € 1.100.
- Nov 2013 **Program committee of the Long Night of Research,**  
*The committee consisted of representatives of the Alpen-Adria-Universität Klagenfurt, the Lakeside Science & Technology Park and media partners*, Financial support to realize the project "Who can quiet the animal shelter?", € 800.

- Oct 2012 - **Austrian Federal Ministry of Research and Science,**  
 Oct 2014 *Exact Approaches to Ordering Problems,*  
 Research and travel grants for outstanding young researchers, € 11.500.

## Research Supervision

### Master Students

- 2016 **A Benchmark Library for the Vehicle Routing Problem with Structured Time Windows and the related Slot Optimization Problem.**  
 Mr. Jörg Pöcher, Alpen-Adria Universität Klagenfurt.
- 2016 **Human Performance on Travelings Salesman Problems with Forbidden Neighborhoods.**  
 Mrs. Julia Fasching, Alpen-Adria Universität Klagenfurt.
- 2016 **Local Search Heuristics for the Vehicle Routing Problem with Structured Time Windows.**  
 Mr. Christian Truden, Alpen-Adria Universität Klagenfurt.
- 2016 **Human Performance on Facility Layout Problems.**  
 Mrs. Daniela Steflitsch, Alpen-Adria Universität Klagenfurt.
- 2015 **Algorithms for Solving the Traveling Salesman Problem with Forbidden Neighborhoods on Grids.**  
 Mr. Michael Firstein, Technische Universität Dortmund.
- 2015 **Exact Approaches to the Directed Circular Facility Layout Problem.**  
 Mr. Vitali Pawelko, Technische Universität Dortmund.

### Bachelor Students

- 2016 **Mixed-Integer Linear Programs for the Vehicle Routing Problem with Structured Time Windows.**  
 Mrs. Kerstin Maier, Alpen-Adria Universität Klagenfurt.
- 2016 **Implementation and Visualization of Optimal Solutions for the Traveling Salesman Problem with Forbidden Neighborhoods.**  
 Mrs. Anna Jellen, Alpen-Adria Universität Klagenfurt.
- 2014 **Game Theory - Braess's Paradox and Selfish Routing.**  
 Mr. Christian Truden, Alpen-Adria Universität Klagenfurt.
- 2014 **The Taxi Routing Problem.**  
 Mrs. Stefanie Kokarnig, Alpen-Adria Universität Klagenfurt.
- 2012 **The Double Row Facility Layout Problem.**  
 Mr. Lucas Gregori, Alpen-Adria Universität Klagenfurt.

### Summer Interns

- 2012 **Facility Layout Problems.**  
Mr. Benjamin Hackl, Ms. Johanna Mlekusch and Mr. Peter Wiltsche,  
Alpen-Adria Universität Klagenfurt.
- 2011 **Graph Drawing and Quadratic Assignment Problem.**  
Mr. Benjamin Hackl and Ms. Miriam Smolnik, Alpen-Adria Universität Klagenfurt.
- 2010 **Traveling Salesman and Target Visitation Problem.**  
Mr. Benjamin Hackl and Ms. Marlene Radl, Alpen-Adria Universität Klagenfurt.

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## Research Presentation

### Invited Conference Presentations (Minisymposia)

- Jul 2015 **Solution Approaches for Equidistant Double- and Multi-row Facility Layout Problems.**  
22nd International Symposium on Mathematical Programming, Pittsburgh, USA.
- May 2014 **A feasible active set method for box-constrained convex problems.**  
SIAM Conference on Optimization, San Diego, USA.
- Sep 2013 **The Price of Cooperation in Differential Games.**  
IFIP 2013, System Modelling and Optimization, Klagenfurt, Austria.
- Aug 2012 **SDP Approaches to some Facility Layout Problems.**  
21st International Symposium on Mathematical Programming, Berlin, Germany.
- May 2011 **Semidefinite Relaxations of Ordering Problems.**  
SIAM Conference on Optimization, Darmstadt, Germany.

### Invited Seminar Presentations

- Dec 2015 **Globally convergent active set methods for convex quadratic problems with simple bounds.** MIT Seminar in Nonlinear Optimization, Cambridge, USA.
- Jan 2015 **Exact Approaches to Row Layout Problems.**  
Oberseminar on Discrete Optimization, Dortmund, Germany.
- Jun 2012 **An SDP Approach to Circular and Multi-Row Facility Layout.**  
Chemnitz, Germany.
- Sep 2011 **Semidefinite Approaches to Ordering Problems.**  
GERAD-Mprime Seminar in Optimization, Montreal, Canada.
- Mar 2010 **A feasible active set method for convex problems with simple bounds.**  
Institute of Mathematics and Scientific Computing, University of Graz, Austria.

### Contributed Conference Presentations

- May 2015 **The Traveling Salesman Problem with Forbidden Neighborhoods on Grids.**  
3<sup>rd</sup> Alpen-Adria Workshop on Optimization 2015, Klagenfurt, Austria.



- Jul 2014 **An Infeasible Active Set Method with Step Size Control.**  
Optimization 2014, Guimarães, Portugal.
- Jul 2014 **An SDP Approach to the Parallel Row Ordering Problem.**  
20<sup>th</sup> Conference of the International Federation of OR Societies, Barcelona, Spain.
- Jul 2014 **The Checkpoint Ordering Problem.**  
12<sup>th</sup> EUROPT Workshop on Advances in Continuous Optimization, Perpignan, France.
- May 2014 **A Feasible Active Set Method for Box-Constrained Convex Problems.**  
SIAM Conference on Optimization, San Diego, USA.
- May 2014 **SDP Relaxations for the Linear Ordering and Traveling Salesman Problem.**  
27<sup>th</sup> ECCO Conference, Munich, Germany.
- Jun 2013 **An SDP Approach to the Directed Circular Facility Layout Problem.**  
7<sup>th</sup> IFAC Conference on Manufacturing Modelling, Management, and Control, Sankt Petersburg, Russia.
- Sep 2012 **An SDP Approach for Complex Facility Layout Structures.**  
International Conference of the German OR Society 2012, Hannover, Germany.
- Aug 2012 **A Comparison of Approaches for Ordering Problems.**  
Future Research in Combinatorial Optimization 2012 (FRICO), Berlin, Germany.
- Jul 2012 **A Semidefinite Optimization Approach to Multi-Row Facility Layout.**  
25<sup>th</sup> European Conference on Operational Research (EURO), Vilnius, Lithuania.
- Apr 2012 **An SDP Approach to Single-Row and Space-Free Multi-Row Facility Layout.**  
25<sup>th</sup> ECCO Conference, Antalya, Turkey.
- May 2011 **Exact Approaches to Mult-level Vertical Orderings.**  
2<sup>nd</sup> Alpen-Adria Workshop on Optimization 2011, Klagenfurt, Austria.
- Jan 2011 **An SDP Approach to Multi-level Crossing Minimization.**  
Algorithm Engineering & Experiments 2011, San Francisco, California, USA.
- Jan 2011 **An SDP Approach to Multi-level Crossing Minimization.**  
15<sup>th</sup> Combinatorial Optimization Workshop, Aussois, France.
- Sep 2010 **An SDP Approach to Quadratic Ordering Problems.**  
Future Research in Combinatorial Optimization 2010 (FRICO), Graz, Austria.
- Jun 2010 **Nonstandard active set methods for convex problems with simple bounds.**  
1<sup>st</sup> Alpen-Adria Workshop on Optimization, Klagenfurt, Austria.
- Dec 2008 **N-Person Dynamic Stackelberg Affine-Quadratic Difference Games.**  
35<sup>th</sup> Macromodels International Conference, Warsaw, Poland
- Jul 2008 **N-Person Dynamic Stackelberg Affine-Quadratic Difference Games.**  
13<sup>th</sup> International Symposium on Dynamic Games and Applications, Wroclaw, Poland.
- Jun 2008 **N-Person Dynamic Stackelberg Open-Loop Difference Games.**  
14<sup>th</sup> International Conference on Computing in Economics and Finance, Paris, France.

### Poster Presentations

Sep 2014 **New Active Set Methods for Nonlinear Convex Optimization Problems.**  
2<sup>nd</sup> Postgraduate Student & Young Faculty Conference, Klagenfurt, Austria.

### Popularization of Mathematics

- Dec 2014, **Who can build the best city?**  
Apr 2013 Quadratic Assignment Problem, Workshop for several school classes at the Alpen-Adria Universität Klagenfurt.
- Sep 2014 **Semidefinite Programming and its Famous Applications in Mathematics and Computer Science.**  
Workshop at the Heidelberg Laureate Forum.
- May 2015, **Who can quiet the animal shelter?**  
Apr 2014 Single-Row Facility Layout Problem, Interactive Presentation at the Long Night of Research and at the Scratch Day.
- Feb 2014 **How to behave in an interrogation?**  
Game Theory, Presentation at the University for Kids at the Alpen-Adria Universität Klagenfurt.
- Dec 2013 **How to behave in an interrogation and a test of courage?**  
Nov 2009 Game Theory, Presentation for pupils at the Alpen-Adria Universität Klagenfurt.
- Feb 2013 **Who can quiet the school class?**  
Row Facility Layout Problems, Presentation at the University for Kids at the Alpen-Adria Universität Klagenfurt.
- Apr 2012 **Who can build the best city?**  
Quadratic Assignment Problem, Interactive Presentation at the Long Night of Research.
- Feb 2011 **A Journey through the Alpen-Adria-Area.**  
Traveling Salesman Problem, Presentation at the University for Kids at the Alpen-Adria Universität Klagenfurt.
- Nov 2010 **Do you find the best itinerary?**  
Target Visitation Problem, Interactive Presentation at the Long Night of Research at the Alpen-Adria Universität Klagenfurt.
- Nov 2008 **Do you find the shortest path?**  
Chinese Postman Problem, Interactive Presentation at the Long Night of Research at the Alpen-Adria Universität Klagenfurt.

### Referee

I act as a referee for international journals, conferences and books including:

- 2×since 2014 **SIAM Journal on Optimization.**  
7×since 2010 **Mathematical Programming A and B.**  
7×since 2011 **European Journal on Operational Research.**

- 3×since 2015 **Operations Research.**
- 2015 **Optimization Letters.**
- 2015 **Computers & Operations Research.**
- 2×since 2014 **International Journal of Production Research.**
- 2×since 2010 **Discrete Applied Mathematics.**
- 2016 **Annals of Operations Research.**
- 2013 **Optimization Methods and Software.**
- 2015 **Applied Mathematics and Computation.**
- 2014 **Logistics Research.**
- 2013 **IPCO.**
- 2014 **ISCO.**
- 2010 **Handbook of Semidefinite, Cone and Polynomial Optimization.**

## Research Visits

- Nov 2015 – **Massachusetts Institute of Technology,**  
Nov 2016 *Laboratory for Information & Decision Systems, Visiting Prof. Parrilo for 1 year.*
- 2014 **Universidade de Coimbra,**  
*Department of Mathematics, visiting Prof. Júdice for 1 week.*
- 2012 **Technische Universität Chemnitz,**  
*Department of Mathematics, visiting Prof. Helmberg for one week.*
- 2011 **Univerza v Ljubljani,**  
*Department of Mathematics, visiting Prof. Povh for three days.*
- 2011 **Universität zu Köln,**  
*Department of Computer Science, visiting Prof. Jünger for three days.*
- 2010 **Ruprecht-Karls-Universität Heidelberg,**  
*Department of Computer Science, visting Prof. Reinelt for two weeks.*

## Teaching Experience

My teaching includes lectures and exercise sessions for the study programs mathematics, computer science, information technology, business administration, and for teacher training.

### Alpen-Adria-Universität Klagenfurt, Department of Mathematics

- Summer 15 **Lecture “Algorithmic Graph Theory” (45h),**
- Winter 12/13 Undergraduate course in the area of discrete mathematics.
- Summer 15 **Proseminar “Discrete Mathematics” (30h),**  
Undergraduate course in the area of discrete mathematics.

- Summer 14 **Lecture “Linear Optimization” (30h),**  
 Summer 13 Undergraduate course in the area of operations research.
- Summer 14, **2 × Exercises “Linear Optimization” (15h),**  
 13 and 10 Exercise part of the above lecture.
- Winter 13/14 **Lecture “Combinatorial Structures” (45h),**  
 Undergraduate course in the area of discrete mathematics.
- Winter 13/14 **Exercises “Combinatorial Structures” (15h),**  
 Exercise part of the above lecture.
- Winter 12/13 **2 × Exercises “Mathematics for Economic Sciences” (15h),**  
 Exercise part of an undergraduate course in Economics.
- Summer 12 **Lecture “Game Theory” (45h),**  
 Undergraduate course in the area of operations research.
- Summer 11 **Lecture “Mathematical Models in Economics” (45h),**  
 Undergraduate course in the area of operations research.
- Winter 11/12 **Lecture “Nonlinear Optimization” (45h),**  
 Winter 10/11 Undergraduate course in the area of operations research.
- Winter 09/10 **2 × Exercises “Analysis I” (30h),**  
 Exercise part of an introductory undergraduate course.
- Summer 09 **Exercises “Analysis II” (30h),**  
 Exercise part of an undergraduate course in the area of analysis.
- Winter 08/09 **Exercises “Discrete Mathematics” (30h),**  
 Exercise part of an undergraduate course in the area of discrete mathematics.
- Summer 09 **Tutorial “Mathematics in Business Administration” (30h),**  
 A supplementary course for business students.
- Summer 09 **Tutorial “Analysis I” (30h),**  
 A supplementary course in the area of analysis.
- Winter 06/07 **Tutorial “Discrete Mathematics” (30h),**  
 Winter 05/06 A supplementary course in the area of discrete mathematics.
- [Technische Universität Dortmund, Department of Mathematics](#)
- Winter 14/15 **Lecture “Combinatorial Optimization” (45h),**  
 A graduate course in the area of operations research.

### Administrative activities

- since 2011 Member of the **Curricularkommission Computer Science**.
- since 2008 Member of the **department panel** of the department of Mathematics in Klagenfurt.
- since 2010 **Co-organization** of 4 conferences at the Alpen-Adria-Universität Klagenfurt.

## Public Relations

- 3×since 2011 **University for Kids.**
- 5×since 2008 **Long Night of Research.**
- since 2009 Presentations and workshops in **high schools.**
- 2010–2012,2015 Supervision of pupils under the project **Forschung macht Schule** in July each year.

## Languages

- Fluent **German, English**
- Intermediate **French**
- Basic **Spanish, Russian**

## Further Qualification

I attended workshops and trainings for proposal writing, presentation skills, communication and leadership. Additionally I attended several scientific workshops and seminars including:

- Sep 2014 **Heidelberg Laureate Forum 2014**, Germany.
- Aug 2014 **EURO Summer Institute (ESI) 2010**,  
*Nonlinear Methods in Combinatorial Optimization*, Klagenfurt, Austria.
- May 2010 **Oberwolfach–Seminar**,  
*Semidefinite Optimization: Theory, Algorithms and Applications*, Germany.
- Jul 2007 – **COMISEF-Research- and Trainingsnetwork**,
- Jul 2009 Attendance of several workshops in Europe.