



# Dr. Paul Schmidt

DATA SCIENTIST / BIOSTATISTICIAN

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## Professional experience

### BioMath - Applied Statistics and Informatics in Life Sciences

Rostock & Hamburg, Germany

DATA SCIENTIST / GENERAL MANAGER

Since Jan 2019

- Various statistical analyses from raw data to final report, including conceptualization of research approach; data acquisition, cleansing, and integration; data analysis and modeling; interpretation, presentation, and communication of results.
- Recent projects: Time series and correlation analysis of air parameters; Comparison of agricultural treatments; Co-creation and evaluation of monitoring surveys; Epidemiological risk assessments using meta-analyses; Evaluation of geographical distributions using GIS data.
- Implement new / streamline existing SOPs (for e.g. systematic literature reviews and meta-analyses) by making better use of in-depth functionality of established software and additionally via introducing complementing software/tools
- Conduct systematic reviews, write and proofread scientific reports
- General manager since September 2022

### Freelancer (part-time)

see 'Workshops' section below

WORKSHOP TEACHER

Since Nov 2018

- Develop and teach workshops on statistics in R; specific content and language according to the contractor
- Provide corresponding material on my websites (see 'Other skills' section below)

### University of Hohenheim

Stuttgart, Germany

RESEARCH ASSOCIATE

Sep 2015 - Dec 2018

- Personalized consulting (ranging from single-appointment to project-accompanying) for students and research associates in terms of experimental design, data handling, statistical analyses and/or presentation of results
- Develop, conduct and manage yearly statistical analysis of yield stability data for external company
- Develop, organize and teach workshops in statistics, R and SAS
- Supervise student writing his MSc thesis

### BioMath - Applied Statistics and Informatics in Life Sciences

Rostock, Germany

JUNIOR DATA SCIENTIST

Jan 2015 - Aug 2015

- Streamline statistical analyses of monitoring data
- Implement SOP for systematic literature reviews

## Education

### University of Hohenheim

Stuttgart, Germany

DR. SC. AGR.

Sep 2015 - Nov 2019

- DFG-funded PhD student in the biostatistics unit of Prof. Dr. Hans-Peter Piepho
- Cumulative doctoral thesis: 'Estimating heritability in plant breeding programs' graded 'magna cum laude'

### Purdue University

West Lafayette, IN, USA

VISITING PHD STUDENT

Sep 2015 - Dec 2015

- Visiting PhD student in the statistical bioinformatics unit of Prof. Dr. Rebecca Whitbeck Doerge
- Arranged on personal initiative, this collaboration allowed for scientific exchange and inspiration at the beginning of my PhD

### University of Hohenheim

Stuttgart, Germany

MSC CROP SCIENCE: PLANT BREEDING

Oct 2012 - Dec 2014

- Specialization in biostatistics and plant breeding (final grade 1.4)
- MSc Thesis: 'Statistical Evaluation and Analysis of PACTS trials as a series of on-farm strip trials without replicates' graded 1.0

### University of Hohenheim

Stuttgart, Germany

BSc AGRIBIOLOGY (IN GERMAN)

Oct 2009 - Sep 2012

- Specialization in plant sciences and genetics (final grade 1.9)
- BSc Thesis: 'Cumulative effects of glyphosate trace concentrations during root exposition of winter wheat' graded 1.0

### Alexander Central High School

Taylorsville, NC, USA

STUDENT EXCHANGE YEAR

Aug 2006 - Jul 2007

- Completed senior year and obtained high school diploma

## Skills

<b>General</b>	collaboration, communication, structuring, time management, strategic oversight, problem solving
<b>Languages</b>	German (native), English (effective operational proficiency)
<b>Open Source</b>	Website <a href="https://schmidtpaul.github.io/dsfair_quarto/">https://schmidtpaul.github.io/dsfair_quarto/</a> , R package BioMathR <a href="https://schmidtpaul.github.io/BioMathR/">https://schmidtpaul.github.io/BioMathR/</a> , R package CitaviR <a href="https://schmidtpaul.github.io/CitaviR/">https://schmidtpaul.github.io/CitaviR/</a>
<b>Presentation</b>	data visualization, data analysis reports, scientific publications, presentations
<b>Software</b>	R, Python, SAS, SPSS, SQL, MS Office (VBA)
<b>Statistics</b>	(generalized) linear (mixed) models, exploratory & descriptive data analysis, experimental design

## Workshops

Jul 2023	<b>Statistics with R - an Introduction</b>	Universität Bonn via zoom	12h
Jun 2023	<b>Data science for exp. life sciences with R (part 2)</b>	Thünen-Institut, Braunschweig via zoom	20h
Jun 2023	<b>Data Science in den exp. Naturwiss. mit R (Teil 2)</b>	Thünen-Institut, Braunschweig via zoom	20h
May 2023	<b>Statistics with R - an Introduction</b>	Universität Bonn via zoom	12h
May 2023	<b>Data science for exp. life sciences with R (part 1)</b>	Thünen-Institut, Braunschweig via zoom	20h
May 2023	<b>Data Science in den exp. Naturwiss. mit R (Teil 1)</b>	Thünen-Institut, Braunschweig via zoom	20h
Feb 2023	<b>Introduction to data science for exp. life sciences with R</b>	Pro-RUWA via zoom	24h
Nov 2022	<b>Data science for exp. life sciences with R (part 2)</b>	Thünen-Institut, Braunschweig via zoom	20h
Nov 2022	<b>Data Science in den exp. Naturwiss. mit R (Teil 2)</b>	Thünen-Institut, Braunschweig via zoom	20h
Nov 2022	<b>Data science for exp. life sciences with R (part 1)</b>	Thünen-Institut, Braunschweig via zoom	20h
Nov 2022	<b>Data Science in den exp. Naturwiss. mit R (Teil 1)</b>	Thünen-Institut, Braunschweig via zoom	20h
Nov 2022	<b>Statistics with R - an Introduction</b>	Universität Bonn via zoom	12h
Oct 2022	<b>R and the Tidyverse</b>	FBN, Dummerstorf via zoom	5h
Mar 2022	<b>Data science for exp. life sciences with R (part 2)</b>	Thünen-Institut, Braunschweig via zoom	24h
Mar 2022	<b>Data Science in den exp. Naturwiss. mit R (Teil 2)</b>	Thünen-Institut, Braunschweig via zoom	24h
Mar 2022	<b>Data science for exp. life sciences with R (part 1)</b>	Thünen-Institut, Braunschweig via zoom	24h
Mar 2022	<b>Data Science in den exp. Naturwiss. mit R (Teil 1)</b>	Thünen-Institut, Braunschweig via zoom	24h
Dec 2021	<b>Statistics with R (Beginner)</b>	Universität Kassel	24h
Jul 2021	<b>Data science in den Naturwiss. mit R (Teil 2)</b>	Thünen-Institut, Braunschweig via zoom	24h
May 2021	<b>Data science in den Naturwiss. mit R (Teil 1)</b>	Thünen-Institut, Braunschweig via zoom	24h
Mar 2021	<b>Data science in den Naturwiss. mit R (Teil 2)</b>	Thünen-Institut, Braunschweig via zoom	24h
Nov 2020	<b>Planning exp. designs, repeated measurements, and their analyses in R</b>	Universität Kassel via zoom	16h
Nov 2020	<b>Data science in den Naturwiss. mit R (Teil 1)</b>	Thünen-Institut, Braunschweig via zoom	24h
Oct 2020	<b>Experimental Design - Practicals in R</b>	CIHEAM Zaragoza via zoom	10h
Mar 2020	<b>Real-time consultation on statistics and mixed models in R</b>	Universität Kassel	16h
Dec 2019	<b>Basics of applied statistics</b>	Universität Rostock	16h
Nov 2019	<b>Data science for life sciences with R (part 2)</b>	Thünen-Institut, Braunschweig	24h
Oct 2019	<b>Data science for life sciences with R (part 1)</b>	Thünen-Institut, Braunschweig	24h
Sep 2019	<b>Essential basics of statistics</b>	Universität Rostock	16h
Nov 2018	<b>Gemischte Modelle in R</b>	Thünen-Institut, Braunschweig	24h
May 2018	<b>Implementation of yield stability assessment with ASReml-R</b>	Bangladesh Rice Res. Inst., Gazipur	4h
2016-2018	<b>Statistical analysis with SAS (monthly)</b>	Universität Hohenheim, Stuttgart	18h
2016-2018	<b>Statistical analysis with R (monthly)</b>	Universität Hohenheim, Stuttgart	18h

## Scientific publications

- Schmidt, K., Friedrichs, P., & Schmidt, P. (2022). *Warenstromanalyse tierischer lebensmittel: Gutachten zur erzeugung, verarbeitung, vermarktung und zum verzehr von fleisch, milch und eiern in deutschland* (No. 158/2022). [https://www.umweltbundesamt.de/sites/default/files/medien/479/publikationen/texte\\_158-2022\\_warenstromanalyse\\_tierischer\\_lebensmittel.pdf](https://www.umweltbundesamt.de/sites/default/files/medien/479/publikationen/texte_158-2022_warenstromanalyse_tierischer_lebensmittel.pdf)
- Friedrichs, P., Schmidt, P., & Schmidt, K. (2021). *Protanopie und protanomalie bei berufskraftfahrern und berufskraftfahrerinnen - prävalenz und unfallrisiko: = protanopia and protanomaly among professional drivers: Prevalence and accident risk: Vols. Heft 319.* <https://bast.opus.hbz-nrw.de/frontdoor/index/index/searchtype/series/id/5/start/1/rows/25/docId/2574>
- Schmidt, K., Friedrichs, P., Cornelsen, H. C., Schmidt, P., & Tischer, T. (2021). *Musculoskeletal disorders among children and young people: Prevalence, risk factors, preventive measures: A scoping review.* <https://doi.org/10.2802/511243>

4. Buntaran, H., Piepho, H.-P., Schmidt, P., Rydén, J., Halling, M., & Forkman, J. (2020). Cross-validation of stagewise mixed-model analysis of swedish variety trials with winter wheat and spring barley. *Crop Science*, 60(5), 2221–2240. <https://doi.org/10.1002/csc2.20177>
5. Kukowski, S., Schmidt, P., Piepho, H.-P., Röhl, M., Hauffe, H.-K., & Streck, T. (2020). Auswirkungen atmosphärischer stickstoffeinträge auf magere flachland-mähwiesen in baden-württemberg. *Natur Und Landschaft*, 95(2), 58–67. <https://doi.org/10.17433/2.2020.50153773>. 58–67
6. Schmidt, P. (2019). *Estimating heritability in plant breeding programs*. <http://opus.uni-hohenheim.de/volltexte/2020/1720/>
7. Schmidt, P., Hartung, J., Bennewitz, J., & Piepho, H.-P. (2019). Heritability in plant breeding on a genotype-difference basis. *Genetics*, 212(4), 991–1008. <https://doi.org/10.1534/genetics.119.302134>
8. Schmidt, P., Hartung, J., Rath, J., & Piepho, H.-P. (2019). Estimating broad-sense heritability with unbalanced data from agricultural cultivar trials. *Crop Science*, 59(2), 525–536. <https://doi.org/10.2135/cropsci2018.06.0376>
9. Schmidt, P., Möhring, J., Koch, R. J., & Piepho, H.-P. (2018). More, larger, simpler: How comparable are on-farm and on-station trials for cultivar evaluation? *Crop Science*, 58(4), 1508–1518. <https://doi.org/10.2135/cropsci2017.09.0555>
10. Tulinská, J., Adel-Patient, K., Bernard, H., Líšková, A., Kuricová, M., Ilavská, S., Horváthová, M., Kebis, A., Rollerová, E., Babincová, J., Aláčová, R., Wal, J.-M., Schmidt, K., Schmidtke, J., Schmidt, P., Kohl, C., Wilhelm, R., Schiemann, J., & Steinberg, P. (2018). Humoral and cellular immune response in wistar han RCC rats fed two genetically modified maize MON810 varieties for 90 days (EU 7th framework programme project GRACE). *Archives of Toxicology*, 92(7), 2385–2399. <https://doi.org/10.1007/s00204-018-2230-z>
11. Schmidt, K., Schmidtke, J., Schmidt, P., Kohl, C., Wilhelm, R., Schiemann, J., van der Voet, H., & Steinberg, P. (2017). Variability of control data and relevance of observed group differences in five oral toxicity studies with genetically modified maize MON810 in rats. *Archives of Toxicology*, 91(4), 1977–2006. <https://doi.org/10.1007/s00204-016-1857-x>
12. Zeljenková, D., Aláčová, R., Ondřejková, J., Ambušová, K., Bartušová, M., Kebis, A., Kovřížnych, J., Rollerová, E., Szabová, E., Wimmerová, S., Černák, M., Krivošíková, Z., Kuricová, M., Líšková, A., Spustová, V., Tulinská, J., Levkut, M., Révajová, V., Ševčíková, Z., ... Steinberg, P. (2016). One-year oral toxicity study on a genetically modified maize MON810 variety in wistar han RCC rats (EU 7th framework programme project GRACE). *Archives of Toxicology*, 90(10), 2531–2562. <https://doi.org/10.1007/s00204-016-1798-4>