

BIANCA PETERSON

PROFILE



I am a detail-oriented professional with exceptional interpersonal abilities and a strong aptitude for team leadership. My passion for education is complemented by a natural talent to comprehend and teach complex information. In 2016, I certificied as a Carpentries' instructor, a pivotal milestone that has empowered me to enhance my data science proficiency by teaching fundamental computational skills at volunteer workshops.

My academic journey culminated in the completion of a Ph.D. in Environmental Sciences with a focus on genetics, followed by a post-doctoral fellowship at the Centre of Excellence for Pharmaceutical Sciences (Pharmacén) at the North-West University. I have also demonstrated my adaptability by providing tailored data science training to a diverse array of audiences, including those in linguistics, biological sciences, investment management, and the medical industry.


In recognition of my expertise, I was certified as an instructor trainer for The Carpentries in 2020, a role that entails training new instructors in pedagogical techniques. My contributions to the field have been further acknowledged through my appointment as a co-chair of the CODATA-RDA Schools of Research Data Science Working Group. This role involves instructing a comprehensive range of data science skills, encompassing Open Science principles, research data management and curation, utilization of various data platforms and infrastructures, large-scale analysis, and advanced visualization and modeling techniques. My involvement in this initiative underscores my exceptional project management and coordination proficiencies, ensuring the successful delivery of these educational programs.

CONTACT

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EDUCATION

PhD Environmental Sciences

2013-2017

North-West University, Potchefstroom, South Africa

MSc Environmental Sciences

2011-2012

North-West University, Potchefstroom, South Africa

BSc Hons Environmental Sciences

2010

North-West University, Potchefstroom, South Africa

BSc Microbiology & Biochemistry

2006-2009

North-West University, Potchefstroom, South Africa

National Senior Certificate

2005

Hoërskool Zeerust, North-West, South Africa
Matriculation with Exemption

Distinctions: English, Afrikaans, Mathematics, Accounting, Physical Science, Biology

PUBLICATIONS

PUBLISHED

Weyers, M., **Peterson, B.**, Hamman, J.H. & Steenekamp, J.H. 2022. Formulation of chitosan microparticles for enhanced intranasal macromolecular compound delivery: factors that influence particle size during ionic gelation. *Gels*, 8(11):686.

Gerber, W., Svitina, H., Steyn, J.D., **Peterson, B.**, Kotzé, A., Weldon, C. & Hamman, J.H. 2022. Comparison of RPMI 2650 cell layers and excised sheep nasal epithelial tissues in terms of nasal drug delivery and immunocytochemistry properties. *Journal of Pharmacological and Toxicological Methods*, 113:107-131.

Peterson, B., Jacobsz, C., Hamman, J.H., Viljoen, A. & Steyn, J.D. 2021. Pharmacokinetic interactions: The effects of selected herbal extracts on permeation of P-glycoprotein substrate drugs across excised pig intestinal tissue. *Journal of Herbmmed Pharmacology*, 11(1):121-130.

Peterson, B., Heystek, H., Hamman, J.H. & Steyn, J.D. 2021. Effects of transport medium composition on *in vitro* drug permeation across excised pig intestinal tissue. *Drug Delivery Letters*, 11: 62.
<https://doi.org/10.2174/2210303110999201005214114>

Peterson, B., Sañko, T., Bezuidenhout, C.C. & Van den Berg, J. 2019. Transcriptome and differentially expressed genes of *Busseola fusca* larvae challenged with Cry1Ab toxin. *Gene*, 710:387-398.

Peterson, B., Weyers, M., Steenekamp, J.H., Steyn, J.D., Gouws, C. & Hamman, J.H. 2019. Drug bioavailability enhancing agents of natural origin (bioenhancers) that modulate drug membrane permeation and pre-systemic metabolism. *Pharmaceutics*, 11(1):33.

Venter, A., Siebert, S.J., Rajakaruna, N., Barnard, S., Levanets, A., Ismail, A., Allam, M., **Peterson, B.** & Sañko, T. 2017. Biological crusts of serpentine and non-serpentine soils from the Barberton Greenstone Belt of South Africa. *Ecological Research*, 33(3):629-640.

Peterson, B., Bezuidenhout, C.C. & Van den Berg, J. 2017. An overview of mechanisms of Cry toxin resistance in lepidopteran insects. *Journal of Economic Entomology*, 110(2).

Peterson, B., Bezuidenhout, C.C. & Van den Berg, J. 2016. Cytochrome c oxidase I and cytochrome b gene sequences indicate low genetic diversity in South African *Busseola fusca* (Lepidoptera: Noctuidae) from maize. *African Entomology*, 24(2).

Venter, B. & Bezuidenhout, C.C. 2014. Opsomming: 'n PKR genereringsmetode vir proteïen-reseptorgene vanaf *Busseola fusca*-ingewande, moontlik betrokke by Bt-weerstandigheid. Suid-Afrikaanse Tydskrif vir Natuurwetenskap en Tegnologie, 33(1), Art. #932, 1 page. <http://dx.doi.org/10.4102/satnt.v33i1.932>

SUBMITTED FOR PUBLICATION

Joubert, R., Hamman, J.H., Steenekamp, J.H., **Peterson, B.** & Steyn, J.D. Formulation and *in vitro* evaluation of a furosemide-containing gastro-retentive MUPS tablet dosage form.

IN PREPARATION

Joubert, R., Hamman, J.H., Steenekamp, J.H., **Peterson, B.** & Steyn, J.D. Design of an *in vitro* cranberry and sodium bicarbonate fixed dose gastro-retentive dosage form.

Joubert, R., Hamman, J.H., Steenekamp, J.H., **Peterson, B.** & Steyn, J.D. Formulation of Glucomannan in a buoyant gastro-retentive tablet for glucose adsorption.

HONORS | AWARDS | MEMBERSHIPS | CONTRIBUTIONS

2023	Adivisory Board Member: Women in Technology in Nigeria (WITIN), 20 October
2020-2023	Co-chair: Research Data Alliance Co-chair: CODATA-RDA Schools of Research Data Science (Working Group) Organizer and instructor: CODATA-RDA Schools of Research Data Science (University of Pretoria, South Africa, as well as International Center of Theoretical Physics (ICTP), Trieste, Italy) Instructor trainer: The Carpentries
2018-2020	Task Force: CarpentryCon 2020
2018	Member of the Pharmacen™ Drug Delivery Scientific Committee for evaluation of post-graduate research proposals
2017	Mentor: The Carpentries Community
2016	Task Force: CODATA-RDA Research Data Science Summer Schools Qualified Software Carpentry Instructor, 11 October Qualified Data Carpentry Instructor, 25 July
2014	Department of Science & Technology (DST) scholarship to attend the 13 th International Symposium on the Biosafety of Genetically Modified Organisms (ISBGMO), Cape Town, 9 - 13 November
2012	3 rd place in the 1st session of the 12 th Annual Student Symposium for the Sciences, Potchefstroom, South Africa, 25 - 26 October 1 st place for the best oral presentation at M.Sc. level at the South African Academy for Science and Art: Year Congress of the Biological Sciences Division, Potchefstroom, South Africa, 5 October
2009	Best 3 rd year student in Microbiology Best 3 rd year student in Biochemistry
2008 - 2012	Golden Key International Honour Society Excellence Award

WORK HISTORY

1 December 2022 – current	Senior Data Scientist, Fathom Data Reference: Andrew Collier +44 7389 843145 andrew@fathomdata.dev
1 June 2021 – 30 November 2022	Senior Administrative Assistant (Project Management) Hypertension in Africa Research Team (HART), North-West University, Potchefstroom Reference: Prof. Ruan Kruger (018) 299 2904 ruan.kruger@g.nwu.ac.za
1 June 2018 – 31 May 2021	Post-doctoral Research Associate Centre of Excellence for Pharmaceutical Sciences (Pharmacen™), North-West University, Potchefstroom Reference: Prof. Dewald Steyn (018) 299 4483 dewald.steyn@nwu.ac.za
2019	Next-Generation Sequencing (NGS) Data Analysis: Timbavati (Kruger National Park) Prof. Sandra Barnard, Department of Botany, North-West University, Potchefstroom Reference: Prof. Sandra Barnard (018) 299 2508 sandra.barnard@nwu.ac.za
2018	Consultation & Data Analysis: General Data Wrangling Faculty of Education, North-West University, Potchefstroom Reference: Vivian Claassen (018) 299 4437 Vivian.claassen@nwu.ac.za Consultation & Data Analysis: Teaching and Learning Plan Faculty of Health Sciences, North-West University, Potchefstroom Reference: Prof. Gerda Reitsma (018) 285 2381 gerda.reitsma@nwu.ac.za
2017	Next-Generation Sequencing (NGS) Data Analysis: Barberton Green Belt Prof. Sandra Barnard, Department of Botany, North-West University, Potchefstroom Reference: Prof. Sandra Barnard (018) 299 2508 sandra.barnard@nwu.ac.za
1 August - 31 October 2017	Acting Lecturer Microbiology Department, North-West University, Potchefstroom Reference: Prof. Sarina Claassens (018) 299 2321 sarina.claassens@nwu.ac.za
1 June - 31 December 2017	African Research Cloud Metagenomics Demonstration Project Coordinator Information Technology Department Reference: Adelle Lotter (018) 299 4621 adelle.lotter@nwu.ac.za
1 June 2016 - 31 August 2017	Conference Secretariat: South African Association of Health Educationalists 10 th International Conference Reference: Prof. Gerda Reitsma (018) 285 2381 gerda.reitsma@nwu.ac.za
1 March 2016 - 31 March 2017	Training Coordinator, Talarify Reference: Anelda van der Walt 072 838 6969 anelda@talarify.co.za
1 April - 1 December 2013	Temporary Junior Lecturer Microbiology Department, North-West University, Potchefstroom Reference: Prof. Carlos Bezuidenhout (018) 299 2315 carlos.bezuidenhout@nwu.ac.za
1 October - 31 December 2012	Assistance with administration Physiology Department, North-West University Potchefstroom Reference: Prof. Alta Schutte (018) 299 2444 alta.schutte@nwu.ac.za
21 October - 5 December 2011	Assistance with administration School of Environmental Sciences and Development, North-West University, Potchefstroom Reference: Danica Liebenberg-Weyers (018) 299 4706 danica.liebenbergweyers@nwu.ac.za
2010, 2011, 2012, 2014	Practical demonstrator for undergraduates and UNISA students Microbiology Department, North-West University, Potchefstroom Reference: Prof. Carlos Bezuidenhout (018) 299 2315 carlos.bezuidenhout@nwu.ac.za
31 March 2008 - 31 December 2010	Assistance with administration Laboratory for Inborn Errors of Metabolism, North-West University, Potchefstroom Reference: Ansie Mienie (018) 299 2312 ansie.mienie@nwu.ac.za

WORKSHOPS | CONFERENCES | TRAINING | CERTIFICATIONS

2023

Co-organiser & Instructor | CODATA-RDA School of Research Data Science, Trieste, Italy, 31 July – 11 August.

Co-organiser & Instructor | CODATA-RDA School of Research Data Science, Virtual (International), May – June.

Certification | AWS Certified Cloud Practitioner, 20 February. Candidate ID: AWS03374862. Registration Number: 442504798

2022

Attendee | Practical HPC Winter School Online Course, presented by NICIS, Centre for High Performance Computing, 22 August – 9 September

Co-organiser & Instructor | CODATA-RDA School of Research Data Science, Trieste, Italy, 11-22 July.

Co-organiser & Instructor | CODATA-RDA School of Research Data Science, Virtual (International), 9 May – 15 July.

Teach | Workshop: Data organisation, manipulation and visualisation using R, XA International Trading, Online, August 2021 – 10 May 2022

2021

Co-organiser & Instructor | CODATA-RDA School of Research Data Science, Virtual (International), 6 September – 12 November.

Co-organiser & Instructor | CODATA-RDA School of Research Data Science, Virtual (International), 3 May - 9 July.

Teach | Instructor training: The Carpentries, 17 -21 May.

2020

Teach | Workshop: Data organisation, manipulation and visualisation using R, Right to Care, Bethlehem, 30 November – 2 December

Teach | Workshop: Data organisation, manipulation and visualisation using R, Right to Care, Centurion, 23 – 25 November

Oral presentation | Easy peasy plots with {esquisse}, satRday conference, 7 March

Helper | Advanced workshop: R package development, presented by Heather Turner, PricewaterhouseCoopers, 6 March

Teach | Workshop: Introduction to R, PricewaterhouseCoopers, 4 – 5 March

Co-author oral presentation | Siebert, F; **Peterson, B**; Ismail, A; Allam, M; Bosch, A; Mashele, M & Barnard, S. The contribution of forbs to the dry season diet of elephant, impala and cattle in a semi-arid savanna. International Savanna Science Network Meeting, Skukuza, 1 – 5 March

Teach | Software Skills Training for Danielle Botha, PhD student, North-West University, Potchefstroom, 17 - 24 February

Attend | The Carpentries Instructor Trainer Training, Online, 5 February – 18 March

Attend | Workshop on Computational Toxicology, North-West University, 27 - 31 January

Co-organiser & Instructor | CODATA-RDA Research Data Science Summer School, University of Pretoria, Pretoria, South Africa, 13 - 24 January.

WORKSHOPS | CONFERENCES | TRAINING | CERTIFICATIONS

2019

Teach | Data Carpentry-based Workshop, South African National Biodiversity Institute (SANBI), Roodevalley Faircity Hotel, 22 August

Teach | Remote Software Skills Training for Sandra Williams, Program Execution Manager, BroadReach Healthcare, Cape Town, 6 August - Current

Teach | Data Carpentry-based Workshop, Prudential Investment Managers, Claremont, Cape Town, 3 - 5 July

Teach | Data Carpentry-based Workshop (weekly sessions), The South African Centre for Digital Language Resources (SADiLaR), NWU (Potchefstroom Campus), 25 March - 4 April

Teach | Data Carpentry-based Workshop, Hypertension in Africa Research Team (HART), NWU (Potchefstroom Campus), 24 - 26 April

Oral presentation | Report writing with R Markdown, part of satRday Conference 2019, 6 April

Teach | Ecology Data Carpentry Workshop, part of satRday Conference 2019, University of the Witwatersrand, Johannesburg, 3 - 4 April

Teach | Ecology Data Carpentry Workshop, Walter Sisulu University, East London, 31 January - 2 February

2018

Teach | Social Sciences Data Carpentry Workshop, CarpentryConnect Johannesburg, Birchwood Hotel: OR Tambo Hotel & Conference Centre, Johannesburg, 3 - 5 September

Teach | One-day R Workshop, CSIR International Convention Centre, Pretoria, 21 June

Teach | Ecology Data Carpentry Workshop, NWU (Potchefstroom Campus), 14 - 15 June

Attend | ATLAS.ti workshop for qualitative data analysis, presented by Nicole Claasen, NWU, 22 February

Attend | Introductory short course on statistics and data analysis for research purposes using R, presented by Statistics Subject Group, NWU, 29 - 31 January

2017

Teach | Software Data Carpentry Workshop, NWU (Potchefstroom Campus), 30 November - 1 December

Teach | Metagenomics Data Carpentry-based Workshop, NWU (Potchefstroom Campus), 24 - 27 October

Teach | One-day R workshop, Research Week, NWU (Potchefstroom Campus), 19 September

Tutor | CODATA-RDA Research Data Science Summer School, International Centre for Theoretical Physics, Trieste, Italy, 10 - 21 July

Teach | Data Carpentry Workshop, NWU (Vaal Triangle Campus), 31 May - 1 June

Teach | Data Carpentry Workshop - Part two, NWU (Mafikeng Campus), 6 - 7 April

Teach | Data Carpentry Workshop - Part one, NWU (Mafikeng Campus), 23 March

2016

Certification | Software Carpentry Instructor, 11 October

Teach | Genomics Data Carpentry Workshop, NWU (Potchefstroom Campus), 26 - 29 September

WORKSHOPS | CONFERENCES | TRAINING | CERTIFICATIONS

Oral presentation | NWU genomics capacity building: teaching people how to fish, SASBi-SAGS Congress, Cape Town, 20 - 23 September

Attend | CODATA-RDA Research Data Science Summer School, International Centre for Theoretical Physics, Trieste, Italy, 1 - 12 August

Certification | Data Carpentry Instructor, 25 July

Training | Software and Data Carpentry Instructor Training, NWU (Potchefstroom Campus), 17 - 20 April

Attend | Services to support research data management Workshop, CSIR, Pretoria, 17 March

Certification | Bioconductor for Genomic Data Science (90.0%), Johns Hopkins University via Coursera, 4 November

Certification | Command Line Tools for Genomic Data Science (96.7%), Johns Hopkins University via Coursera, 1 August

Certification | Algorithms for DNA Sequencing (98.6%), Johns Hopkins University via Coursera, 24 June

Certification | Python for Genomic Data Science (96.4%), Johns Hopkins University via Coursera, 13 April

Certification | Genomic Data Science with Galaxy (100%), Johns Hopkins University via Coursera, 17 February

Certification | Introduction to Genomic Technologies (92%), Johns Hopkins University via Coursera, 20 January

2015

Attend | Software Carpentry Workshop, NWU (Potchefstroom Campus), 5 - 6 November

Training | Emergency Care Level Three (refresher course), presented by Danie Huyser, NWU, 6 - 15 July

2014

Poster presentation | *Cytochrome c oxidase I* and *cytochrome b* mitochondrial genes indicate low genetic diversity of South African *Busseola fusca* (Lepidoptera: Noctuidae), 13th ISBGMO, Cape Town, 9 - 13 November

Oral presentation | Mitochondrial genes indicate low genetic diversity of South African *Busseola fusca* (Lepidoptera: Noctuidae), Symposium on GM crops and co-technologies, 7 November

Poster presentation | Mitochondrial genes indicate low genetic diversity of South African *Busseola fusca* (Lepidoptera: Noctuidae), SASBi-SAGS Congress, Pretoria, 23 - 26 September

Judge | 2nd Annual NWU Postdoctoral Conference, Potchefstroom, 9 September

Training | ELISA (enzyme-linked immunosorbent assay), presented by Dr. Rialet Pieters, NWU, Potchefstroom, 13 - 14 August

Training | Bioinformatics, specializing in *de novo* transcriptome assembly from Next Generation Sequencing (NGS) data, presented by Jurgens de Bruin, ARC-OVI Biotechnology Platform, Pretoria, 19 - 30 May

Oral presentation | Genetic studies of *Busseola fusca* (Lepidoptera: Noctuidae), Transgene detection and management of transgene technology workshop, Potchefstroom, 5 May

Training | Liquid handling, presented by Victor Menezes, NWU, Potchefstroom, 4 February

Training | DNA and RNA sample preparation for next generation sequencing, presented by Marija Kvas and Kerry-Anne Pillay, ARC-OVI Biotechnology Platform, Pretoria, 27 - 31 January

WORKSHOPS | CONFERENCES | TRAINING | CERTIFICATIONS

2013

Judge | Postdoctoral Conference – “It starts with us”, Potchefstroom, 15 November

Oral presentation | Detection of partial Cry receptor gene sequences from *Busseola fusca*, Entomological Society of Southern Africa XVIII ESSA Congress, Potchefstroom, 30 June - 3 July

Poster presentation | Preliminary phylogenetic relationship of *Busseola fusca* based on cytochrome b gene sequences, Entomological Society of Southern Africa XVIII ESSA Congress, Potchefstroom, 30 June - 3 July

Training | Real-time PCR, presented by Dr. Charlotte Mienie at the North-West University, Potchefstroom, South Africa, 6 - 9 May

Attend | The British Society for Protist Biology Spring Meeting, Natural History Museum, London, 10 - 12 April

Attend | The Natural History Museum's Annual Student Conference, Natural History Museum, London, 18 - 19 March

Collaborative research | Developmental gene expression in a parasitic species, Natural History Museum, London, 1 March - 14 April

2012

Oral presentation | 12th Annual Student Symposium for the Sciences, Potchefstroom, South Africa, 25 - 26 October

Oral presentation | The South African Academy for Science and Art: Year congress of the Biological Sciences Division, Potchefstroom, South Africa, 5 October

Training | ChemiDoc MP imaging system by Bio-Rad, presented by Jeanine Coetzee, NWU (Potchefstroom Campus), July

Training | Emergency Care Level Three, presented by Danie Huyser, NWU (Potchefstroom Campus), 9 - 13 July

Oral presentation | The Biosafety Regional Course (Holistic Foundations for Assessment and Regulation of Genetic Engineering and Genetically Modified Organisms), University of Dar es Salaam, Tanzania, 23 - 28 April

Training | Southern Blotting by Bio-Rad, presented by Jeanine Coetzee, NWU (Potchefstroom Campus), 5 March

Teach | PCR to Honour students, NWU (Potchefstroom Campus), 1 - 3 February

Training | Manual Liquid Handling by Lasec, presented by Victor Menezes, NWU (Potchefstroom Campus), 31 January

2011

Poster presentation | II ISHS GMO in Horticultural Symposium, Witrivier, South Africa, 11 - 15 September

Training | Western Blotting by Bio-Rad, NWU (Potchefstroom Campus), 13 July

Attend | Introductory Phylogenetics Workshop, presented by Dr. Jane Wright, University of Pretoria, 10 - 13 May

Training | Emergency Care Level One, presented by Danie Huyser, NWU (Potchefstroom Campus), 4 - 8 April

Teach | Writing of a Dissertation to Honour students, NWU (Potchefstroom Campus), 11 July

2010

Training | Real-time PCR detection by Bio-Rad, presented by Ursula Gorniak, NWU (Potchefstroom Campus), 16 July