




BIANCA PETERSON

PROFILE



I am a dedicated, detail-oriented worker with excellent interpersonal and team management skills. I am passionate about teaching and have a natural ability to pick up and absorb information quickly and challenge myself to continually learn and show valuable insights through critical thinking. In 2016, I qualified as a Carpentries' instructor, which has allowed me to advance my data science skills through teaching foundational computational skills at regular volunteer workshops. I obtained my PhD in Environmental Sciences (genetics) in 2017, followed by a post-doctoral fellowship at the Centre of Excellence for Pharmaceutical Sciences (Pharmacem) at the North-West University. I have also provided tailored data science skills training to diverse audiences, ranging from languages, biological sciences, investment managers, and teams working in the medical industry. In 2020 I qualified as an instructor trainer for The Carpentries, which entails training of new instructors on the topic of pedagogy. I was invited to be a co-chair of the CODATA-RDA Schools of Research Data Science Working Group. The CODATA-RDA initiative entails teaching an ensemble of Data Science skills, including the principles and practice of Open Science and research data management and curation, the use of a range of data platforms and infrastructures, large scale analysis, visualisation and modelling techniques. My involvement in this initiative has allowed me to apply my superb project management and coordination skills to ensure successful delivery of these schools.

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 Hermed 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

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 Pharmacem™ 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.

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