

Melanie Claire Hay

CURRICULUM · VITAE

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Education

MSc (Med) in Exercise Physiology

Cape Town, South Africa

UNIVERSITY OF CAPE TOWN

Jan. 2011 - April 2013

- Thesis: The effect of selected genetic polymorphisms on musculoskeletal connective tissue
- Supervisors: Prof M. Collins, Dr M. Posthumus, Dr A. September
- Thematic modules: Biological basis of physical activity/inactivity, Biology of musculoskeletal soft tissue injuries, Biomechanics and technology in sport
- [Research experience: 24 months full-time]

BSc (Med) (Hons) in Medical Biochemistry

Cape Town, South Africa

UNIVERSITY OF CAPE TOWN

Jan. 2010 - Dec. 2010

- Grade: Honours, top in department
- Thesis: The regulation of NDRG1-induced VEGF-A expression in oesophageal cancer cell lines
- Supervisor: Professor D.T. Hendricks and Dr. J. C. Bracher
- Coursework: Cancer Biology, Molecular mechanisms of disease, Xenobiotic metabolism, Transcription regulation in health and disease, Scientific communication, Laboratory Techniques module
- [Research experience: 4 months part-time, 4 months full-time]

BSc in Genetics and Human Physiology

Cape Town, South Africa

UNIVERSITY OF CAPE TOWN

Jan. 2007 - Dec. 2009

- Grade: Overall degree awarded with distinction, distinction in Genetics, distinction in Human Physiology
- First year: Chemistry, Cell Biology, Biological Diversity, Physics of Natural Systems, Mathematics, Statistics, Human Evolution
- Second year: Introduction to Human Biology, Molecular Components of Cells, Introduction to Genetics, Human Biology- Regulation and Integration, Metabolism, Eukaryotic Cell Regulation and Cell Signalling
- Third Year: General and Applied Physiology, Recombinant DNA, Genomics and Proteomics, Biophysics and Neurophysiology, Molecular Evolution, Genetics and Development, MCB Research Project: Androgen-receptor-mediated regulation of transcription
- [Research experience: 3 months part-time]

BA in English Literature and Psychology

Grahamstown, South Africa

RHODES UNIVERSITY

Jan. 2004 - Dec. 2006

- Grade: Distinction in Psychology
- First Year: English Literature 1, Psychology 1, Sociology 1, Philosophy 1
- Second Year: English Literature 2, Psychology 2, Sociology 2, Politics 1
- Third Year: English Literature 3, Psychology 3, Cell Biology 101

Semester Exchange Program

Chestertown, Maryland, United

States of America

WASHINGTON COLLEGE

Jan. 2005 - Dec. 2005

- Semester exchange
- Courses: Abnormal Psychology and Psychopathology, Sociology of Childhood, Modernism, Introduction to World Politics

Work Experience

Education technologist: chemistry specialisation

Cape Town, South Africa

SIYAVULA EDUCATION

Jan. 2015 - Jun. 2016

- Designed sets of interactive, adaptive, dynamic exercises (in Python and LaTeX), that cover high school chemistry content, across different curricula from around the world.
- Exercises are served on the Everything Maths website (<http://www.everythingmaths.co.za>). To date, over 3 million exercises done this year (2016).

Workshop facilitation and teacher training

Cape Town, South Africa

SIYAVULA EDUCATION

Oct. 2014 - Dec. 2014

- Part of a team that provided training to Natural Science Subject Advisors on topics in the CAPS curriculum. Helped plan, create training materials and facilitate workshops. Created and delivered talks and content on teaching Grade 4-6 Natural Sciences.

Content coordinator: Natural Sciences and Life Sciences

Cape Town, South Africa

SIYAVULA EDUCATION

Mar.2013 - Jun. 2014

- Editing, authoring, layout and translation of content. Responsible for curriculum alignment, checking textbook content for scientific integrity, content writing, proof-reading, sourcing of supplementary multimedia resources, checking of copyright licenses, technical editing in XML and LaTeX, layout of textbooks for print.
- Thunderbolt Kids, Grade 4-6 Natural Sciences and Technology workbooks: (<http://www.thunderboltkids.co.za>)
- Curious, Grade 7-9 Natural Science workbooks: (<http://www.mstworkbooks.co.za/natural-sciences/natural-sciences.html>)
- Life Sciences, Grade 10 textbook: (<http://www.everythingscience.co.za/lifesciences/grade-10>)

UCT/ MRC Exercise Science and Sports Medicine Research Intern

Cape Town South Africa

UCT/ MRC EXERCISE SCIENCE AND SPORTS MEDICINE RESEARCH UNIT

Mar. 2012 - Mar. 2013

- Investigated selected collagen genes that may influence susceptibility to musculoskeletal injuries. Duties included writing ethics proposals, liaison with doctors at private and government hospitals, participant recruitment, administration of questionnaires, phlebotomy, data capture, DNA extraction, PCR analysis, statistical analysis of results and writing up of results for scientific papers.
- The research conducted in this year was part of, and concurrent with my MSc (Med)

Research Assistant (part-time)

Cape Town, South Africa

SPORTS SCIENCE INSTITUTE OF SOUTH AFRICA

Nov. 2011 - Sep. 2012

- Assisting in the testing of participants in commercial research projects.
- Study: The Metabolic Effects of a Commercially Available Chicken Peri-Peri (African Bird's Eye Chilli) Meal in Overweight Individuals
- Duties: Vascular Reactivity testing in private research, capture of data for analysis.
- This part-time work was done during my MSc (Med)

Tutor/ Demonstrator (part-time)

Cape Town, South Africa

UNIVERSITY OF CAPE TOWN

Feb. 2011 - May 2012, Feb. 2012

- Tutored IP Medical Biochemistry for first year MbChB
- Demonstrated Molecular Biology Techniques Course: honours course
- This part-time work was done during my MSc (Med)

Courses and Training

COURSES

2016	Coursera Verified Certificate: An Introduction to Interactive Programming in Python (Part 1) , License H6MWHKQM8K	100%
2016	Coursera Verified Certificate: An Introduction to Interactive Programming in Python (Part 2) , License 76LTNSK87S	99.4%
2015	edX Verified Certificate for Introduction to Computer Science and Programming Using Python , License c10bcfc717fc474c9dedf39c02838efb	97%
2016	Coursera Verified Certificate for Learning How to Learn: Powerful mental tools to help you master tough subjects , License L8BG64ETJZGJ	100%
2016	edX Honor Code Certificate for The Science of Everyday Thinking , License c10bcfc717fc474c9dedf39c02838efb	83%
2015	Coursera certificate of Accomplishment for Sleep: Neurobiology, Medicine, and Society , Honor code certificate	97.6%
2011	SAQA Basic Phlebotomy course , SAQA assessor: A5200923	awarded
2011	EMTSA - Emergency Cardio-Pulmonary Resuscitation (CPR) , Certificate number: 817083	awarded

TRAINING & WORKSHOPS

2015	American Chemical Society (ACS) , South African Chemical Institute (SACI) Workshop	Cape Town Nelspruit,
2014	DBE/ Sasol Inzalo/ Siyavla Education , DBE Subject Advisor Training: Natural Sciences	Johannesburg, Cape Town
2013	DBE/ Siyavula Education , DBE Grade 7-9 textbook review	Johannesburg
2012	Wellcome Trust , Wellcome Trust Open Door Workshop: Working with the Human Genome Sequence	Kilifi, Kenya
2012	DST/ NRF Internship , Scientific Writing and Presentation Skills Workshop	Cape Town
2012	DST/ NRF Internship , Microsoft Excel level 3 Training	Cape Town
2011	Applied Biosystems , Applied Biosystems StepOne Training Course	Cape Town

Conferences

NATIONAL

- 2013 **DST/NRF Intern Conference: NMMU**, Poster presentation *Port Elizabeth*
- 2012 **MRC Early Career Scientist Conference**, Poster presentation & 5 minute talk *Stellenbosch*
- 2012 **NRF/DST PhD Project Conference**, Attendance *Cape Town*
- 2011 **DAAD In-country scholarship holders meeting**, Attendance *Stellenbosch*

INTERNATIONAL

- 2013 **European College of Sport Science**, Poster presentation: "Association of type XI collagen genes with chronic Achilles tendinopathy in two independent populations" *Barcelona, Spain*

Awards and Funding

AWARDS

- 2010 **1st: Manuel & Luby Washkansky Prize**, Top Honours student in the Health Sciences Faculty *UCT*
- 2010 **1st: final thesis presentation**, Best Honours Thesis Presentation *UCT*
- 2009 **1st: WA and Gordon Jolly Prize- Human Physiology**, Top student in practical component of Human Physiology II (Exercise Science) *UCT*
- 2007-2009 **Academic recognition**, Dean's Merit List *UCT*
- 2005 **Academic recognition**, Dean's Merit List *Washington College*

FUNDING

- 2012 **University of Cape Town**, Marion Beatrice Waddel Bursary *MSc (Med)*
- 2012 **Ernst and Ethel Eriksen Trust**, Ernst and Ethel Eriksen Trust Scholarship *MSc (Med)*
- 2011 **University of Cape Town/ DAAD/ NRF**, DAAD/NRF In-Country Master's Scholarships *MSc (Med)*
- 2011 **University of Cape Town**, Manuel & Luby Washkansky Scholarship *prize for top honours student *MSc (Med)*
- 2011 **University of Cape Town**, Marion Beatrice Waddel Bursary *MSc (Med)*
- 2011 **Ernst and Ethel Eriksen Trust**, Ernst and Ethel Eriksen Trust Scholarship *MSc (Med)*
- 2010 **University of Cape Town / NRF**, NRF Scarce Skills Bursary *BSc (Med) (Hons)*
- 2010 **University of Cape Town**, Yeoman Bequest *BSc (Med) (Hons)*
- 2010 **University of Cape Town**, UCT Council Merit *BSc (Med) (Hons)*
- 2010 **University of Cape Town**, Claude Leon Foundation *BSc (Med) (Hons)*
- 2009 **University of Cape Town**, Science Faculty Scholarship *BSc*
- 2008 **University of Cape Town**, Science Faculty Scholarship *BSc*
- 2009 **Rhodes University**, Rhodes University Honours Scholarship *** not claimed *BA*
- 2004 **Rhodes University**, Entrance Scholarship *BA*

Peer-reviewed Journal Articles

- Hay M.**, Patricios J, Collins R, Branfield A, Cook J, Handley CJ, September AV, Posthumus M, Collins M. (2013) Association of type XI collagen genes with chronic Achilles tendinopathy in independent populations from South Africa and Australia. *Br J Sports Med.* 47(9):569-574.

Volunteering

Junior category judge, upgrade judge, mentor

Cape Town

ESKOM REGIONAL SCIENCE EXPO

2012

- Junior category judge and upgrade judge for the Eskom Regional Science Expo in Cape Town. Mentored two grade 9 scholars proceeding to National competition and one participant proceeding to the International Science Expo competition in Taiwan.

Biotechnology Role Model

Cape Town

SOUTH AFRICAN AGENCY FOR SCIENCE AND TECHNOLOGY ADVANCEMENT SAASTA

2012

- Biotechnology role model- presented to learners at disadvantaged schools about careers in Biotechnology, at PUB initiative: Basic Biotechnology workshops for learners, held by SAASTA on behalf of the DST at the Cape Town Science Centre (CTSC).

Volunteer / contributor

Cape Town

SIYAVULA EDUCATION

2012

- Prior to a full-time position at Siyavula I took part in various volunteer workshops run by Siyavula, to create content for a Grade 10 Life Sciences Textbook.

Extracurricular Activity

- * **Running**, I have completed the Comrades Marathon 2015, the Old Mutual Ultra-Marathon 2015 and 2013, three full-distance marathons, some 30 + distance races and over 20 half marathons. Running keeps me joyful and sane.
- * **Road cycling**, I have completed 5 Argus Cycle tours and a number of local Cape Town fun rides.