

## Ashley Isaac

Al Reem Island, Abu Dhabi, United Arab Emirates

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### PROFILE SUMMARY



Microbiologist/Researcher



Strategist



Educator



### EDUCATION

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#### Institute and Qualification

#### Graduated

Max Planck Institute for Marine Microbiology & University of Bremen  
*Doctor rerum naturalium (equivalent to PhD) (Biology: Marine Microbiology)*

Jul 2024

University of KwaZulu-Natal  
*Master of Science (Microbiology) by Research*

Mar 2016

University of KwaZulu-Natal  
*Bachelor of Science Honours (Microbiology)*

Dec 2009

University of KwaZulu-Natal  
*Bachelor of Science (Microbial Biotechnology)*

Dec 2008

Westcliff Secondary School  
*Senior Certificate with Endorsement (Distinction)*

Dec 2005



### SKILLS & COMPETENCIES

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- Project design, management and execution
- Research and problem solving
- Scientific and grant proposal writing
- Microbiology techniques: Aseptic technique, handling of fungi, bacteria (including extremophiles) and viruses
- Bioinformatics – (meta)genomics & (meta)transcriptomics
- Molecular techniques: PCR, recombinant DNA technology, heterologous expression, FISH
- Public speaking and effective science communication



### RESEARCH PROJECTS

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- Phytoplankton-diatom interactions: Resulted in 5 publications (+1 in preparation); Doctoral dissertation
- iGEM synthetic biology competition: Resulted in Gold Medal Award (2017), Nomination for Best Diagnostic project (2018), Nomination for Best Diagnostic project (2019)
- Cloning and characterization of thermophilic cellulase: Resulted in Master of Science Dissertation
- Characterization of halophilic xylanase: Resulted in undergraduate dissertation



## EMPLOYMENT HISTORY

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### **Instructor of Biology**

**Sept 2021 – Present**

### **Associate Instructor of Biology**

**Aug 2019 – Aug 2021**

### **Assistant Instructor of Biology**

**Aug 2016 – Jul 2019**

*New York University Abu Dhabi, Abu Dhabi, UAE*

- Designed and lead classes for the following courses:
  - Foundations of Science (Biology) – Scientific Writing, Cell and Molecular Biology
  - Where the City Meets the Sea – Environmental Science
  - Human Biology – Anatomy
  - Communication – Various topics
  - Animal Perspectives – Science meets Art
  - Challenges in Global Health – Public Health
  - Microbes - Microbiology
- Designed homework, assignments and examinations to evaluate students
- Mentored students and provided constructive feedback on their progress
- Kept excellent records for accreditation purposes
- Managed budgets for fieldtrips
- Ensured that undergraduate teaching labs adhere safety regulations
- Involved in community outreach programs
- Initiated and established research collaborations with the Max Planck Institute for Marine Microbiology

### **Global Academic Fellow (Biology)**

**Aug 2013 – May 2015**

*New York University Abu Dhabi, Abu Dhabi, UAE & New York University Shanghai, Shanghai, China*

- Provided academic support to faculty and students
- Taught biology recitations, tutorials and one on one teaching sessions
- Prepared and graded homework and assignments
- Prepared and delivered workshops on time management and plagiarism
- Served as support staff for course administration and participated in admissions process and evaluation of prospective students
- Served as a member of the GAF publicity team and created content to promote the Academic Resource Center
- Served on the GAF Alumni Network committee and planned and launched the Network
- Served as leadership in student life communities (Community Outreach interest group), reviewed budgets, planned and executed events

### **Laboratory Data Research Assistant**

**Feb 2010 – Jun 2011**

*South African Medical Research Council, HIV Prevention Research Unit, Westville, Durban, South Africa*

- Responsible for quality control of all laboratory reports
- Setting up, programed and managed the laboratory information system for clinical trials
- Receiving of clinical samples; design of study kit labels; preparation and dispatch of study kits
- Prepared statistic reports on inventory, study results and test billing
- Wrote, reviewed and edited laboratory SOPs
- General administrative duties including filing, emailing, liaising with vendors and site personnel



## FURTHER EDUCATION & TRAINING

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<b>Computational Systems Biology</b> <i>UCL Summer School</i>	<b>Jun 2019</b>
<b>Summer School in Bioinformatics</b> <i>Wellcome Genome Campus</i>	<b>Jun 2018</b>
<b>Best Practices in Teaching and Learning</b> <i>NYU Abu Dhabi</i>	<b>Aug 2017</b>
<b>Certificate in Budgeting and Scheduling Projects</b> <i>Cousera, University of California, Irvine (Online)</i>	<b>Jun 2016</b>
<b>Certificate in Initiating and Planning Projects</b> <i>Cousera, University of California, Irvine (Online)</i>	<b>Mar 2016</b>
<b>Introduction to Bioinformatics</b> <i>SANBI, University of Western Cape</i>	<b>Feb – Mar 2013</b>



## GRANTS & AWARDS

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- NYUAD Research Travel Grant (2022) – USD 5000
- NYUAD Research Professional Development Travel Grant (2019) – USD 5000
- iGEM 2019 Silver Medal Award plus Nomination for Best Diagnostic Project (2019)
- NYUAD Research Professional Development Travel Grant (2018) – USD 5000
- iGEM 2018 Gold Medal Award plus Nomination for Best Diagnostic Project (2018)
- iGEM 2017 Gold Medal Award (2017)
- NRF Masters Innovation Scholarship (2011) – ZAR 60 000
- UKZN Special Honours Bursary (2009) – ZAR 30 000
- NRF Free Standing Scholarship (2009) – ZAR 10 000
- Victor Daitz Bursary (2008) – ZAR 10 000
- Revlon Bursary (2008) – ZAR 6000
- Granted Membership into the Golden Key International Honour Society (2007)
- Eskom Walter Sisulu Scholarship (2005) – ZAR 10 000



## CONFERENCES & INVITED TALKS

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- ISME19** **Aug 2024**  
*Cape Town, South Africa*  
*Poster Presentation: Unravelling the molecular mechanism of Roseobacteraceae colonization of phytoplankton*
- UAE Microbiome 2023** **Nov 2023**  
*Abu Dhabi, United Arab Emirates*  
*Poster Presentation: Rhodobacteraceae are key members involved in microbiome assembly of the diatom Asterionellopsis glacialis*
- Molecular Ecology Group Internal Seminar** **July 2022**  
*Max Planck Institute for Marine Microbiology, Bremen, Germany*  
*Oral Presentation: Rhodobacteraceae functional profile and diatom secondary metabolites facilitate phycosphere colonization*
- Invited Seminar Speaker** **June 2022**  
*University of Oldenburg, ICMB, Oldenburg, Germany*  
*Oral Presentation: Rhodobacteraceae functional profile and diatom secondary metabolites facilitate phycosphere colonization*
- Ocean Sciences Meeting 2022** **Feb 2022**  
*Online*  
*Oral Presentation: Ecological Niches of Algal Bloom Associated Roseobacters*
- NYUAD Biology Seminar Series** **Apr 2021**  
*Abu Dhabi, United Arab Emirates*  
*Oral Presentation: Ecological Niches of Algal Bloom Associated Roseobacters*
- Marine Microbiota Symposium** **Aug 2019**  
*Oldenburg, Germany*  
*Poster and pitch: Diatom extracellular metabolites modulate microbiome to favor Roseobacteria*
- Summer School in Bioinformatics** **Jun 2018**  
*Wellcome Genome Campus, EBI, Cambridge, UK*  
*Poster: Metagenomic and Transcriptomic Analysis of the Diatom Core Microbiome*
- SASM Annual Symposium** **Oct 2015**  
*Durban, South Africa*  
*Chaired session on Biofuels*
- SASM Annual Symposium** **Oct 2009**  
*Durban, South Africa*  
*Oral Presentation: Characterization of the endoxylanase from a novel haloalkaliphilic Nesterenkonia sp.*



## PUBLICATIONS

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**Isaac A.**, Mohamed A.R, Amin S.A. *Rhodobacteraceae are key members involved in microbiome assembly of the diatom Asterionellopsis glacialis*. (2024) *Applied and Environmental Microbiology* 90: e00570-24. doi: <https://doi.org/10.1128/aem.00570-24>

Shibl A.A, Ochsenkühn M.A, Mohamed A.R, **Isaac A.**, Coe L.S.Y, Yun Y, Skrzypek G, Raina J-B, Justin Seymour J.R, Afzal A.J, Amin S.A. (2023) *Molecular mechanisms of microbiome modulation by the eukaryotic secondary metabolite azelaic acid*. *eLife* 12:RP88525. doi: 10.7554/eLife.88525.1

**Isaac A.**, Francis B, Amann R.I and Amin S.A. (2021) *Tight adherence (Tad) pilus genes indicate putative niche differentiation in phytoplankton bloom associated Rhodobacterales*. *Frontiers in Microbiology*. doi: 10.3389/fmicb.2021.718297

Shibl A.A, **Isaac A.**, Ochsenkühn M.A, Cardenas A, Fei C, Behringer G, Arnoux M, Drou N, Santos M.P, Gunsalus K.C, Voolstra C.R, Amin S.A. (2020). *Diatom modulation of select bacteria through use of two unique secondary metabolites*. *PNAS*. doi: 10.1073/pnas.2012088117.

Fei C, Ochsenkühn M.A, Shibl A.A, **Isaac A.**, Wang C, Amin S.A. (2020). *Quorum sensing regulates 'swim-or-stick' lifestyle in the phycosphere*. *Environmental Microbiology*. doi: 10.1111/1462-2920.15228

Beal J, Farny N.G, Haddock-Angelli T, Selvarajah V, Baldwin G.S, Buckley-Taylor R, Gershater M, Kiga D, Marken J, Sanchania V, Sison A, Workman C.T, the **iGEM Interlab Study Contributors** (2020). *Robust Estimation of Bacterial Cell Count from Optical Density*. *Communications Biology*. 3: 512



## EXTRA CURRICULAR

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### Interests

Guitar; Photography; Traveling; Blogging



## REFEREES

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### **Piergiorgio Percipalle**

*Professor of Biology, Biology Program Head, Biology Program New York University Abu Dhabi*  
pp69@nyu.edu

### **Shady Amin**

*Associate Professor of Biology, Associate Program Head, Biology Program, New York University Abu Dhabi*  
samin@nyu.edu

### **Diane Geng**

*Assistant Provost for Academic Affairs, New York University Shanghai*  
diane.geng@nyu.edu

### **Johnson Lin**

*Professor, Department of Microbiology University of KwaZulu-Natal*  
linj@ukzn.ac.za