

Eric Gemmell Gorriz

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Personal Statement

I am a passionate medicinal chemistry student, focused towards biological systems. Especially driven towards chemical biology and biochemistry, with a strong background in computer science. My goal is to bridge the gap between all these disciplines, creating solutions that would be impractical from the perspective of any one discipline.

Education

2018 - Present: School of Chemistry, University of Glasgow,

Year 5: MSci Chemistry with Medicinal Chemistry, Predicted 1st class degree

Year 4: Placement Year, **GSK**, Project Title: Synthesis and Optimisation of Small Molecule inhibitors: **B1**

Year 3: Organic Chemistry: **A1**, Inorganic Chemistry: **A2**, Physical Chemistry **A2**

Year 2: Chemistry 2: **A2**, Biochemistry 2: **A3**, Mathematics 2: **A2**, Immunology and Microbiology 2: **A4**
Statistics 2: **A3**, Computer Science 2: **A3**

Year 1: Chemistry 1: **A2**, Biology 1: **A5**, Physics 1: **A2**

Prizes and Achievements

2021: Carnegie Trust Chemistry Undergraduate Research Bursary

2021: School of Chemistry Organic Chemistry Level 3 prize for best academic performance

2019: School of Life Sciences Recognition Award for outstanding performance in Level 2 Biochemistry

2018: University of Glasgow Computer Science Hackathon 1st Prize

2017: Lycée Français de Madrid, awarded highest distinction in BAC (90+%)

Work and extracurricular experience

Sept 2022 - Present: Final Year Project, University of Glasgow, Supervisor: Prof Jesko Köhnke

Currently deriving using bioinformatics, the ancestral protein that gave rise to the YcaO enzyme superfamily, to then characterise its structure and function.

Techniques used so far include: **PCR**, cell culture with **aseptic technique**, **E. Coli transformation**, protein purification by **affinity chromatography** and **FPLC**, **gibson assembly** for plasmid synthesis.

Aug 2021 - Aug 2022: GSK, Medicinal Chemistry Placement Student - Supervisor: Dr Chris Tinworth

- Developed **small molecule inhibitors** and **protein degraders** applied to **cancer** therapeutics
- Designed novel compounds structures, probing **SAR** hypotheses
- Designed and **optimised synthetic routes** for rapid synthesis of active compounds, focusing on late stage diversification and access to chemical diversity
- Performed over 300 chemical transformations over the course of the year
- Produced sensitive and toxic compounds using air free techniques with **Schlenk line** and cannula transfer
- **Purified** compounds using **normal** and **reverse phase chromatography**
- Compound structure and purity determined with **¹H, ¹⁹F, ¹³C NMR**, 2D NMR **COSY, NOESY, ROESY, HSQC** and **HMBC**, allowing for differentiation of diastereomeric products
- Performed **chiral synthesis**, to produce and maintain chiral centres
- Presented scientific results on synthetic strategies and SAR progress to the department

May 2021 - Aug 2021: University of Glasgow, Carnegie prize scholarship - Supervisor: Prof Andrew Jamieson

- Awarded Carnegie scholarship for a 12 week long project developing and synthesising novel antimalarial compounds within the **Jamieson Chemical Biology group**
- Came up with novel compound structures designed to probe SAR hypotheses
- Presented findings in the form of a mini thesis and as a zoom presentation to lecturers and peers.
- Functionalized aromatic compounds via ortho lithiation and Suzuki coupling reactions
- Performed reductive aminations, 1,3 dipolar cycloadditions, Sandmeyer reactions among others.
- Purified and characterised compounds via **normal phase chromatography**, **¹H, ¹³C NMR** and **LCMS**

Jun 2020 - Aug 2020: LumiraDX, Summer Development Intern - Supervisor: Dr Clément Monteil

- Researched and prepared **Quantum Dots** integrated into **silica particles** functionalized with **Antibodies** for **Fluorescence Immunoassays**.
- Performed **analytical techniques** such as **Dynamic Light Scattering** to assess nanoparticle size distribution, **UV-Vis**, **TLC** and **HPLC** for purity and reaction completion.
- Designed the upscaled procedure for Tris-Buffer preparation at the hundred-litre scale which is currently used in **Covid-19 tests**, adhering to **GLP**, **GMP**, reporting and **quality assurance** standards required in a healthcare company.
- Wrote **COSHH forms** independently.
- Designed experiments individually after literature research

May 2019 - Aug 2019: Verint, Full Stack Developer Intern

As a result of winning the 2018 University hackathon, I was offered a 12 week internship developing in a team a full stack web application for tracking client data, with online data analysis and real time visualisations.

- Created **full-stack** applications deployed alongside Verint's existing product.
- Backend written in **Java** with **Spring Boot**, **Javascript** frontend utilising **ReactJS** framework
- Developed following **Test-Driven Development**, with **Cucumber** as the main testing language
- Built real-time and interactive data visualisations using **D3.js**
- **Continuous integration** and **deployment** using **TeamCity** and **Docker**

Jan 2019 - Mar 2019: Glasgow University, Volunteer Research Assistant - Supervisor: Prof Gwyn Gould

Worked in the **Gould Lab** performing data analysis of fluorescence images, analysing the cellular distribution of GLUT4 transporters within the cell, to determine the role different **SNARE** proteins had on cellular transport.

- Performed **data analysis** on fluorescence images using **Python** in a **Jupyter notebook**
- Introduced to vital biology techniques including **fluorescence microscopy**, **flow cytometry** and **CRISPR knockouts**
- Maintained a clean and organised lab environment

Jan 2018 - Jun 2019: Chemistry and Biology Tutor

Jun 2018 - Aug 2018: LEOLingo, French, Spanish and English Teacher

Oct 2015 - Jun 2017: Lycee Moliere High School, Computer Science Instructor

Additional Skills

- **Languages:** Native fluency in English, Spanish and French, intermediate German
- **Chemistry:** FT-IR, UV-Vis, Mass-spectrometry, HPLC, ^{13}C , and ^1H NMR spectra, CHN microanalysis, TLC, column chromatography. Reaction set-ups: Wittig, Grignard, Vacuum distillation, Suzuki reaction, Dieckmann condensation, Electrophilic and Nucleophilic aromatic substitution, Swern oxidation etc.
- **Computer Science:** Skilled in many languages and frameworks, including: ReactJS, JavaScript, D3.js, Java, HTML, CSS, Python, R, C#, docker and Linux distributions.
- **Biology:** Light Microscopy, micro pipetting, streak plate technique, ELISA, gel electrophoresis, PCR, restriction digest, SDS-PAGE, Western blotting, gel filtration, cation exchange, heat shock transformation of E. Coli

Referees

Prof Andrew Jamieson - Carnegie Placement Supervisor
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Prof Jesko Köhnke - Final Year Project Supervisor
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