Rosa Tighe – Chemistry with Biosciences Student
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Professional Summary

Dedicated and driven chemistry student with a strong academic background. Adaptable critical thinker with previous experience in research obtained through experiences with UHasselt university, university-based research and independent projects. Motivated learner committed to developing skills in chemistry focusing on physical and organic chemistry as well as biochemistry, immunology and microbiology.

Key skills

- Data analysis, collection and verification
- Multivariable calculus in chemistry
- Porphyrin synthesis
- Organic spectroscopy experience with IR, NMR & UV Vis
- Medicinal chemistry and drug analysis
- Cell and tissue culture
- Computational methods for chemistry
- DNA testing via hydrogels

Experience

Temple University, Philadelphia, Pennsylvania, United States of America **September 2025 – present**

Intern (Physical Chemistry)

- Synthesized a disulfide bond between cysteine molecules through heterogeneous catalysis and photocatalysis by reducing the sulfhydryl groups to an oxidized S-S residue.
- Examined the contribution of cysteine's functional groups to catalyst binding by analysing sterically hindered derivatives.
- Characterized the disulfide bond of the cysteine molecules via Nuclear Magnetic Resonance (NMR), Infrared spectroscopy (IR) and UV-Vis.

The Moyne Institute of Preventive Medicine, Dublin, Ireland **June – July 2025**

Research assistant (Microbiology)

- Tested a subset of phenothiazine drugs against both salmonella and pseudomonas aeruginosa clinical isolates to investigate their anti-microbial resistance.
- Conducted Minimum Inhibitory Concentration (MIC) procedures to determine the lowest concentration of an antimicrobial drug that prevents visible growth of a specific organism.
- Determined the antimicrobial susceptibility of bacteria to different anti-biotics using the Kirby-Bauer disk diffusion test and measured the zones of inhibition on an agar plate.

Trinity College Dublin, Dublin, Ireland **January 2025**

Porphyrin student researcher (Organic Chemistry)

- Synthesized porphyrins using various aldehydes, DMPs and solvents through the medium of "Flow Chemistry" to allow for a sustainable approach in synthesis.
- Analysed products using Nuclear Magnetic Resonance (NMR) & Infrared Spectroscopy (IR) to confirm the presence of a porphyrin & varying functional groups.
- Submitted results obtained to be used in a scientific report to enable subsequent researcher to follow procedure on the successful synthesis of porphyrins.

Relevant Course work

- Synthetic Organic Chemistry
- Quantum Mechanics & Group Theory
- Chemical thermodynamics
- Multivariable Calculus
- Immunology and Immune systems
- Molecular Basis of Disease
- Genomes, disease and diversity

Education

Trinity College Dublin, The University of Dublin. Chemistry with Biosciences (BSc) September 2022 – May 2026

Drumshanbo Vocational School September 2016 - June 2021

Awards and Achievements:

Chemistry Award, Sci Fest Sligo May 2019

Intermediate Award, Sci Fest Sligo May 2019

References available upon request