

JESS HOWELL

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RESEARCH INTERESTS

My research focuses on galaxy evolution, utilizing resolved stellar populations in the Local Volume for galaxy archaeology. Specifically, I am interested in leveraging AGB stars to extract star formation histories and data that contribute to our understanding of galaxy chemical evolution.

EDUCATION

University of Edinburgh

PhD student

Sep 2022-present

Awarded Bell Burnell Graduate Scholarship funding

University College London

Postgraduate Certificate in Education (PGCE)

Sep 2018-Jul 2019

QTS with outstanding progress

Two master's level reports on learning theory and physics education research. Conducted studies in the classroom and the wider placement schools.

University of Southampton

Master of Physics with Astronomy

2014-2018

2.1

Master's project: Stellar Populations of Galaxies Hosting Sub-luminous Supernovae. Analyzing galaxy surveys (GALEX, SDSS) to study the environments of galaxies hosting sub-luminous type Ia supernovae, using stellar population synthesis to assess star mass, formation rate, and age.

3rd-year dissertation: Extensive literature review exploring cosmology, the early universe, and the limitations of Lambda-CDM model, investigating alternative theories.

RESEARCH EXPERIENCE

University of Edinburgh

Sep 2022-present

Using AGB stars as tracers of star formation. A catalogue in M31 has been completed with a paper to be submitted summer 2023. In addition to developing methods for *Euclid* near-IR data in Autumn 2023.

Keele University

Investigating Red Supergiant populations in M101 supervised by Dr Jacco van Loon

Aug 2021-present

A side project investigating the mass loss and dust production of Red Supergiants in M101. Initial exploration of data and literature review completed to date.

Tenerife Teide observatory

Determining properties of transiting exoplanets

April 2016-June 2016

Research project involving transit photometry and model fitting to determine the parameters of an exoplanet. Experience gained operating telescopes.

WORK EXPERIENCE

University of Edinburgh

Sep 2022 -present

Teaching assistant on the Discovering Astronomy and Physics of Fields and Matter undergraduate courses.

Institute of Physics

Oct 2019-present

- Project managing research projects, reviewing the literature on misconceptions in physics and conducting new research in collaboration with UCL.
- Project managing the IOP's teaching websites. Responsible for technical aspects, improvements, maintenance, and design choices.
- Writing teaching resources and articles for the IOPSpark website.
- Managing the work of software developers, website content uploaders and PIPER researchers, as well as getting involved in problem-solving technical problems.
- Writing research, project, and business proposals.
- Campaigning to improve the uptake of physics by underrepresented groups.
- Freelance since September 2022.

Academic tutor

Nov 2019-present

- Mathematics and physics from KS2 to A-level
- Providing a tailored and professional service to a wide variety of students and clients.

Get My Grades

Aug 2019-Sep2019

- Writing, editing and proofreading physics educational content and resources, partly written in HTML and MathJax (using LaTeX).
- Keeping up to date with competitor content and making relevant improvements.

Sydenham School, PGCE placement

Feb 2019-Jul 2019

St Thomas the Apostle School, PGCE placement

Sep 2018-Feb 2019

- Planning creative, accessible lessons for the KS3 and KS4 science curriculum in addition to the Physics A-level curriculum to engage pupils of all abilities.
- Polished organisational skills by balancing the planning, delivery, and evaluation of lessons in addition to marking work and completing university assignments.
- Monitoring student progression, including A-level practical exams.
- Provided feedback to parents during both scheduled meetings and regular phone calls.

OUTREACH

- Assisting with the mobile planetarium in local Edinburgh schools.
- Royal Observatory Edinburgh open day participation.
- Online interviews through the Bell Burnell Graduate Scholarship Fund.
- Co-running an astronomy club as Sydenham School.
- Primary school outreach in London, as part of my PGCE.

SKILLS

Computing: Python, LaTeX, image resampling, SExtractor, TOPCAT, SQL

Core: Project management, written communication, educating, problem-solving, organisation