

JESS HOWELL

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EDUCATION

University College London

Postgraduate Certificate in Education (PGCE)

September 2018 - July 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. Analysing data from galaxy surveys (such as GALEX and SDSS) to delve into the environments of galaxies that host sub-luminous type Ia supernovae (type Iax), using stellar population synthesis to examine the mass, star formation rate and age of stars.

Dissertation: Research into cosmology and the early universe through an extensive literature review. Specifically, the areas where the Lambda-CDM model breaks down and the alternative theories to add to this.

RESEARCH EXPERIENCE

Keele University

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

Aug 2021-present

Using radiative transfer code "DUSTY" and machine learning to investigate the mass loss and dust production of Red Supergiants in M101.

Tenerife Teide observatory

Part of MPhys degree: Determining properties of transiting exoplanets

April 2016-June 2016

Research project involving transit photometry, model fitting to a series-expansion based transit model, minimizing chi squared and bootstrapping data to determine the parameters of an exoplanet such as planet radius, mass, and orbital period. Experience operating telescopes and control rooms in addition to planning, assessing, budgeting and cost analysing a space mission in an international collaboration.

WORK EXPERIENCE

Institute of Physics

Oct 2019-present

- Steering physics education research (PER) projects and activities as part of the PER management group.
- Project managing research projects, reviewing literature on misconceptions in physics and conducting new research in collaboration with UCL.
- Setting up a network of school-based PER researchers and staying on top of recent developments in PER, inviting researchers to write posts for our website and using this to inform the department's work going forward.
- 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.
- Problem-solving technical problems i.e., looking for errors in JavaScript files.
- Managing the work of software developers, website content uploaders and PIPER researchers.

- Writing research, project, and business proposals.
- Campaigning to improve the uptake of physics by underrepresented groups.

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 proof-reading physics educational content and resources, partly written in HTML and MathJax (using LaTeX).
- Keeping up to date with competitor content and making relevant improvements.
- *My short time in this position was due to the start-up company having to make many staff redundant. Reference available.*

Sydenham School, PGCE placement

Feb 2019-Jul 2019

St Thomas the Apostle School, PGCE placement

Sep 2018-Feb 2019

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

CPD AND COURSES

The University of Cambridge

2021

Popular science writing

The University of Sydney (MOOC)

2021

Data-driven Astronomy

The Publishing Training Centre

2020-2022

Writing for the web

Editorial skills for all

Content strategy for the web

Rewriting and substantive editing (non-fiction)

SKILLS

Computing:

Python, LaTeX, LINUX, image resampling (SWarp), SExtractor AstroImageJ, TOPCAT, DS9, SQL, Microsoft Suite

Core:

Project management, oral and written communication, problem solving, organisation, analysis