



# SENIOR LECTURER (EDUCATION FOCUSED)

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| <b>DEPARTMENT/UNIT</b>  | School of Physics and Astronomy |
| <b>FACULTY/DIVISION</b> | Faculty of Science              |
| <b>CLASSIFICATION</b>   | Level C                         |
| <b>WORK LOCATION</b>    | Clayton campus                  |

## ORGANISATIONAL CONTEXT

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Everyone needs a platform to launch a satisfying career. At Monash, we give you the support to take your career in all kinds of exciting new directions. You'll have access to quality research, infrastructure and learning facilities, opportunities to collaborate internationally, as well as the grants you'll need to publish your work. We're a university full of energetic and enthusiastic minds, driven to challenge what's expected, expand what we know, and learn from other inspiring, empowering thinkers. Discover more at [www.monash.edu](http://www.monash.edu).

The **Faculty of Science** works at the frontiers of research and scholarship, and is committed to high quality teaching and learning. The Faculty has numerous partnerships with research institutions, industry, government and individual supporters. Our five Schools offer a large and diverse range of disciplines in undergraduate and postgraduate courses. Ten Schools from other Monash faculties contribute to science teaching at all levels, allowing students to choose their studies from physical, biological, biomedical, behavioural, environmental, mathematical and computer sciences. Our researchers are at the forefront of their fields - conducting research that spans the theoretical to the applied, contributing to new knowledge and technologies, and challenging how we understand and interact with the world. To learn more about the Faculty of Science, please visit our website: [www.monash.edu/science/](http://www.monash.edu/science/).

The **School of Physics and Astronomy** aims to position itself as one of the top physics and astronomy teaching and research departments in Australia. In the past five years the School has gone through an exciting period of renewal - investing significantly in people and facilities. The School of Physics and Astronomy is committed to teaching and research of the highest quality in astronomy, astrophysics, experimental physics, and theoretical physics. It aims to produce graduates with a strong foundation in physics and astrophysics. We are recognised internationally for research in a number of fields of physics and astrophysics; however, we are focused on significantly strengthening our research base to achieve the status of a top ranked international department.

In the most recent national audit of research excellence (ERA 2018), the School achieved the maximum overall rating of 5 for Physical Sciences, including the maximum rating of 5 in each of our assessed fields of research (spanning astronomy & astrophysics, atomic & molecular physics, nuclear and plasma physics, particle physics, condensed matter physics and optics). The School also received the highest rating for the impact of its research.

The School has research strengths in observation astronomy, computational astrophysics, biomedical imaging, biophotonics, ultracold atomic gases, X-ray optics & synchrotron science, gravitational-wave astrophysics, electron microscopy & diffraction, condensed matter physics & nanoscience, high-energy particle physics (both experimental and theoretical) and quantum science.

Currently the School has 30 tenured academic staff, 36 research-only staff and 12 adjunct staff, supported by 14 professional staff. In 2018, the School's total recurrent income was approximately \$20M, with research income in the past four years totaling >\$40M. It is actively involved in six research centres:

- The ARC Centre of Excellence for Future Low Energy Electronics Technologies (FLEET) - <https://www.fleet.org.au/>
- The ARC Centre of Excellence for Gravitational Wave Discovery (OzGrav) - <https://www.ozgrav.org/>
- The ARC Centre of Excellence for Particle Physics at the Terascale (CoEPP) - <http://www.coep.org.au/>
- The Monash Centre for Astrophysics (MoCA) - <http://moca.monash.edu>
- The Monash Centre for Electron Microscopy (MCEM) - <http://mcem.monash.edu.au>
- The Monash Centre for Atomically Thin Materials (MCATM) - <https://www.monash.edu/atomically-thin-materials>

In addition, the School has over two dozen Australian Research Council funded programmes and is an active user of the Australian Synchrotron and the Melbourne Centre for Nanofabrication, which are located adjacent to the Clayton Campus of Monash University. Modern laboratory facilities are a high priority in the School's Strategic Plan. In 2013 the School's research laboratories relocated to a new building - the \$175M New Horizons Research Centre (NHRC). This research centre houses state of the art facilities and specialised infrastructure that supports an active research programme in experimental physical sciences.

The School aspires to be the pre-eminent institution within Australia for the delivery of innovative, active learning across the undergraduate curriculum. To that end the School is committed to improving the teaching and learning environment of our students. Over the last five years we have embarked on an extensive programme of updating teaching facilities, including building dedicated spaces for teaching. For example, >\$10M has been invested in custom-designed spaces for the delivery of the School's teaching programmes at Levels 1-4, including spaces for delivering Studio-based teaching of physics and astronomy at Level 1 and active learning at Levels 1-4. Our students have access to an extensive range of dedicated undergraduate laboratories, specialist teaching facilities and infrastructure that supports our minors, majors and extended majors in both physics and astrophysics. These facilities are complemented by a range of university-wide facilities – providing our students with a rich educational experience.

Further information about the School of Physics and Astronomy is available at:  
<https://www.monash.edu/science/schools/physics>.

## POSITION PURPOSE

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Education-focused staff at Monash are an elite category of the academy who focus on and contribute to the innovation of education, and leading the design and delivery of education at the University. A Senior Lecturer (Education Focused) is expected to make significant contributions to teaching and learning within the School, and engage in educational leadership more broadly at School, Faculty and University level.

The incumbent will contribute to innovative evidence-based pedagogy in the undergraduate physics and astrophysics curriculum, and contribute to the further development and delivery of active learning at Levels 1-4. The role demands a commitment to leadership, excellence, innovation and creativity in teaching and scholarship. The successful candidate will build an outstanding independent research programme in physics/astrophysics education, develop an international profile and attract external funding from National Competitive Grants.

**Reporting Line:** The position reports to Head of School, School of Physics & Astronomy

**Supervisory Responsibilities:** The incumbent will provide supervision to 3 employees as well as Honours, Masters and Higher Degree by Research students

**Financial Delegation:** Not applicable

**Budgetary Responsibilities:** Not applicable

## **KEY RESPONSIBILITIES**

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This position is a Level C education-focused academic, who will engage in educational scholarship, and play a significant leadership role in educational innovation, curriculum design and review. Some of the key areas of responsibility duties of a Level C education-focused academic involve:

1. The preparation and delivery of tutorials, lectures, laboratory activities and active learning workshops
2. Course material and resource development – particularly related to active learning
3. Marking and assessment
4. Consultation with students
5. Designing, implementing and reviewing educational innovations
6. Coordinating a field of study in the physics or astrophysics major
7. Engaging in collaborative design or implementation of cross-faculty or team taught units, courses or projects
8. Building learning and teaching capacity in fellow academics within the School
9. Attendance at School and/or Faculty meetings and a major role in planning or committee work
10. Innovative curriculum design based on systematic and evidence-based review of teaching methods and techniques
11. Exploring the impact of changes in curriculum design and teaching practice on student learning – particularly related to examining the efficacy of active learning and Studio-based teaching
12. Publishing educational or disciplinary research in high-quality refereed journals or equivalent (for example, textbooks or teaching resources)
13. Attracting funding to undertake projects that enhance student learning and teaching outcomes
14. Conference presentations on educational practice and design at national and international conferences
15. Develop collaborations with other research groups in the School, elsewhere at Monash and in Australia, and internationally
16. Broad administrative functions, related to selecting and managing Teaching Associates (TAs), monitoring the quality of TAs, TA training and liaising with unit coordinators in the School in the delivery of the teaching programmes
17. Working with the HoS/Deputy HoS to oversee scheduling/allocation of the School's teaching activities;
18. Working with unit coordinators and HoS/Deputy to ensure the most efficient and effective use of resources
19. Monitor and review the use of the School's teaching spaces and identify any changes required, in conjunction with unit coordinators and professional staff, and oversee the implementation of these changes
20. Lead the development and implementation of innovations in teaching processes
21. Oversee the development and implementation of new teaching spaces and facilities

## KEY SELECTION CRITERIA

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### Education/Qualifications

1. The appointee will have:
  - Relevant academic qualifications, including a PhD and relevant experience in physics, astronomy or astrophysics

### Knowledge and Skills

2. Prior experience in undergraduate teaching in the discipline area, e.g., delivery of lectures, tutorials, workshops, laboratory programmes and small group teaching
3. Demonstrated excellence in teaching in the discipline area (i.e., through quantitative/qualitative evaluations, teaching innovations and through curriculum development)
4. A strong scholarship/research record as evidenced by publications in high-quality international refereed journals or equivalent (e.g., textbooks or teaching resources), and where appropriate the securing of external funding
5. Proven experience mentoring and supervising honours, MSc and PhD students
6. Highly organised and with the capacity to discharge administrative duties related to the position. This includes the ability to plan, organise and achieve work targets, sometimes in demanding circumstances and work harmoniously and constructively with academic colleagues and other university staff
7. High-level interpersonal skills and proven ability to establish a good working relationship with colleagues and students and to develop and maintain strong professional links with relevant partners and the community
8. Proven ability, commitment and passion for engaging in academic activities, e.g., taking a leadership role where appropriate
9. Ability to promote the discipline both within the University and to the greater community
10. Capacity to develop a significant independent programme of research/scholarship
11. Record of obtaining external funding, particularly through National Competitive Grants
12. Excellent written and verbal communication skills necessary to carry out the duties of the position, e.g., written, for updating and creating quality documentation (traditional and online); verbal, for clear and efficient communication with colleagues and students and “digital” for forward looking e-delivery of teaching and learning
13. Familiarity with the active learning paradigm, such as Studio teaching
14. Capacity to maintain a public profile as a leader in their field of scholarship
15. Previous experience in a course leadership position
16. Knowledge, and a clear understanding, of current Education Research in physics or astronomy/astrophysics
17. Experience with techniques and laboratory equipment relevant to experimental physics, with the capacity to play a role in developing advanced undergraduate experiments in one or more areas aligned with the School’s research directions
18. Knowledge of the pedagogical uses of computers in teaching

## OTHER JOB RELATED INFORMATION

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- There may be a requirement to work additional hours from time to time
- There may be peak periods of work during which taking of leave may be restricted
- The incumbent will be required to hold a valid Working With Children Check

## **LEGAL COMPLIANCE**

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Ensure you are aware of and adhere to legislation and University policy relevant to the duties undertaken, including: Equal Employment Opportunity, supporting equity and fairness; Occupational Health and Safety, supporting a safe workplace; Conflict of Interest (including Conflict of Interest in Research); Paid Outside Work; Privacy; Research Conduct; and Staff/Student Relationships.