Journal of Nature Studies 25(1): 38-55
Online ISSN: 2244-5226

SPACE BIOLOGY IN THE PHILIPPINES: A NARRATIVE REVIEW OF RESEARCH POTENTIALS AND FUTURE DIRECTIONS

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ABSTRACT – Space biology is emerging as one of the most consequential scientific frontiers of the twenty-first century. This paper presents a narrative review of foundational concepts and current trends in space biology, examines their relevance for Philippine higher education institutions, and proposes a transdisciplinary roadmap for developing space biology education and research capacity in the country. The review draws on a secondary analysis of publicly available bibliometric network data describing the global space bioscience literature, together with a synthesis of peer-reviewed evidence on planetary analog research and space health science. It argues that the Philippines possesses a distinctive opportunity to contribute to global space bioscience through strategic investment in microbial studies, plant biology, cell and molecular biology, cross-disciplinary integration with artificial intelligence (AI) and synthetic biology, and aerospace nursing. The proposed roadmap identifies priority research areas, foreseeable challenges, future directions, and a phased academic architecture suited to the current capacity of Philippine research institutions.

Keywords: aerospace nursing, microgravity, Philippines, space biology, space biosciences

JOURNAL OF NATURE STUDIES
(formerly Nature's Bulletin)
Online ISSN: 2244-5226

To cite this paper: Hernandez, J.P.T. 2026. Space Biology in the Philippines: A Narrative Review of Research Potentials and Future Directions. *Journal of Nature Studies, 25*(1), 38-55.