Dhirendra Prasad Upadhyay

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OBJECTIVE

Aspiring to pursue a challenging and rewarding role in physics or mathematics that allows me to leverage my strong analytical abilities, critical thinking, and problem-solving expertise. Committed to contributing to scientific research, data-driven analysis, and innovative advancements in applied domains. Eager to collaborate in multidisciplinary teams, tackle complex scientific problems, and continuously develop my skills to drive meaningful contributions to the field.

EDUCATION

Tri-Chandra Multiple Campus, Tribhuvan University **2022 – Present**
Bachelor of Science in Physics Kathmandu, Nepal

- **Physics Courses:** Mechanics, Thermodynamics, Statistical Physics, Electricity and Magnetism (PHY 101); Optics, Modern Physics and Electronics (PHY 201); Mathematical Physics and Classical Mechanics (PHY 301); Space Science (PHY 305); Quantum Mechanics (PHY 401); Nuclear Physics and Solid State Physics (PHY 403).
- **Mathematics Courses:** Calculus (MAT 101); Analytical Geometry and Vector Analysis (MAT 102), Linear Algebra (MAT 201); Differential Equations (MAT 202).
- **Meteorology Courses:** General Meteorology and Climatology (MET 101); Physical Meteorology and General Hydrology (MET 201); Synoptic and Aviation Meteorology (MET 301); Micrometeorology (MET 304).
- **Other Courses:** Scientific Communication (SC 101);Applied Statistics(203); Research Methodology (RM 305); Econophysics (PHY 407); Computational Course (COM 408).

Radiant Secondary School **2020-2022**
High School (Science Stream) Mahendranagar, Kanchanpur

SUPPLEMENTARY COURSES

Foundations of Quantum Mechanics **Completed: April 2025**
| Instructor: Wounjhang Park University of Colorado Boulder (Coursera)
Explored wave-particle duality, expectation values, Schrödinger and Heisenberg pictures, and multiparticle systems (fermions and bosons).

Introduction to Quantum Computing **Completed: April 2025**
| Instructors: Dr. Connie Hsueh & Dr. Derrick Boone Jr. The Coding School
Completed a 100-hour introductory course covering quantum gates, circuits, algorithms, and hands-on programming simulations using platforms like Google Colab.

Particle Physics: An Introduction **Completed: December 2024**
| Instructors: Martin Pohl & Anna Sfyrla University of Geneva (Coursera)
Explored subatomic physics, particle acceleration, detection, and advanced concepts like dark matter and energy.

From the Big Bang to Dark Energy **Completed: November 2024**
| Instructor: Hitoshi Murayama The University of Tokyo (Coursera)
Studied the universe's origins, inflation, dark energy, and the Higgs Boson.

Understanding Einstein: The Special Theory of Relativity **Completed: October 2024**
| Instructor: Larry Randles Lagerstrom Stanford University (Coursera)
Covered Einstein's special relativity, time dilation, spacetime, and relativity paradoxes.

Understanding Research Methods **Completed: July 2024**
| Instructors: Dr. J. Simon Rofe, Dr. Yenn Lee & Dr. Dan Plesch University of London (Coursera)
Learned essential research methodologies, proposal writing, and critical thinking.

Writing in the Sciences **Completed: March 2024**
| Instructor: Dr. Kristin Sainani Stanford University (Coursera)
Enhanced scientific writing skills, focusing on clarity, conciseness, and impactful communication.

TECHNICAL SKILLS

Programming Languages: Python and R
Software & Tools: LaTeX, Matlab, Quantum ESPRESSO
Analytical Skills: Hypothesis testing, Regression Analysis, Experimental Design, Computational Simulations.
Communication: Effective scientific writing, Presentations, Collaborative Research.

COLLOQUIA AND WORKSHOPS

Advanced Quantum ESPRESSO Training **03 – 08 Aug 2025**
St. Xavier's College Maitighar, Kathmandu

- Completed a 30-hour (2-credit) advanced training on Quantum ESPRESSO, focusing on DFT and electronic structure simulations for materials modeling.

Workshop on Space and Atmosphere Physics **1 & 2 Oct 2024**
St. Xavier's College Maitighar, Kathmandu

- Learned foundation knowledge, data acquisition, and analysis

Workshop on Experimental Plasma Physics **2 - 4 Aug 2024**
Central Department of Physics, Tribhuwan University Kirtipur, Kathmandu

- Gained foundational knowledge in plasma physics, including the development of a low-cost plasma driver and its electrical and optical characterization.

Introduction to Python **04 - 28 June 2024**
Tri-Chandra Research Group Online

- Covered foundational Python programming from basics up to modules including NumPy, Pandas, and Matplotlib.

QSilver28: Quantum Computing and Programming Workshop **28 July – 02 Aug 2025**
QWorld, QNepal Online

- Acquired foundational quantum computing knowledge and programming skills, covering complex numbers, quantum states and operators, Bloch Sphere, Quantum Fourier Transform (QFT) and its applications, and Shor's algorithm.

LaTeX Online Workshop **05 Nov – 15 Nov 2024**
Tri-Chandra Research Group Online

- Learned basics of LaTeX for scientific writing and document preparation.

Workshop on Data Analysis Techniques and Documentation **02 – 04 Jun 2024**
Department of Physics, Tri-Chandra Multiple Campus Ghantaghar, Kathmandu

- Gained hands-on experience in atmospheric data analysis and scientific documentation techniques.

NASA Space Apps Challenge **05 – 06 Oct 2024**
Nepal Research and Collaboration Center (NRCC) Kathmandu, Nepal

- Participated in a 36-hour residential global hackathon, working on space and Earth science challenges with a multidisciplinary team.

VOLUNTEERING

One-Day Seminar on Research Writing and Awareness **14th May 2025**
Tri-Chandra Multiple Campus Ghantaghar, Kathmandu

- Volunteered to assist in organizing and facilitating the seminar, helping participants with research writing and awareness activities.

REFERENCES

Some references are hyperlinked to the title and others are available upon request.