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AIMS | African Institute for Mathematical Sciences CAMEROON

AIMS CAMEROON

NEWSLETTER

AIMS-Cameroon Students Successfully Complete Their Internship Report Presentations

From February 26 to 28, 2025, our Cooperative Education Master's students presented their groundbreaking research, applying mathematical sciences to real-world challenges in banking, AI, healthcare, digital systems, renewable energy, and more.

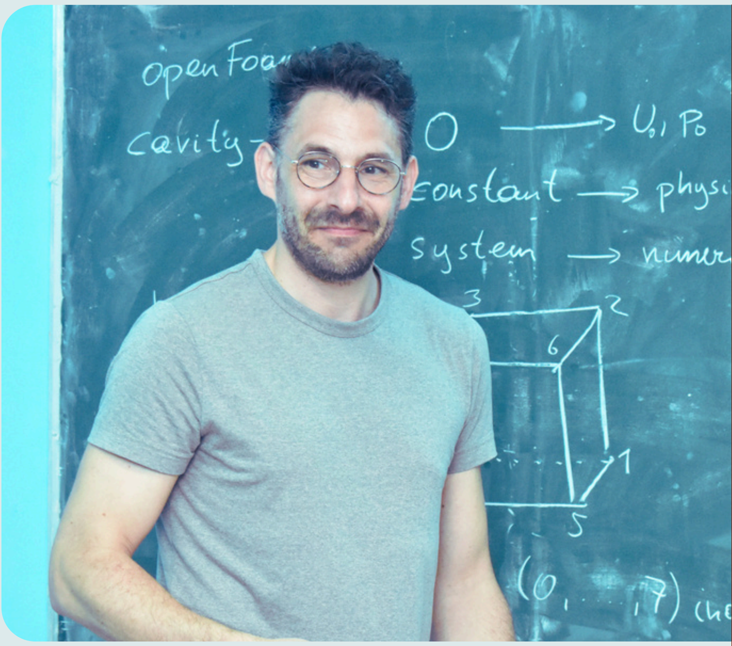
With guidance from renowned academic and industry experts from institutions such as the Federal University of Bahia (Brazil), Equinor (Oslo), Opensee (Paris), Diool (Cameroon), Limbe Regional Hospital, UPOWA, Kaeyros Analytics, and Limbe City Council, these students demonstrated innovation, problem-solving, and industry-driven research.

A huge congratulations to all our students for their dedication and excellence! Special thanks to our supervisors, examiners, and jury members for their invaluable support. This milestone reflects AIMS-Cameroon's commitment to empowering Africa's next generation of problem solvers.

Entrepreneurship Week

From February 17–22, 2025, students applied their STEM knowledge to innovative solutions for Africa's development within the framework of STEMUP 2025, a five-day Business & Employability Training Week at AIMS Cameroon, Limbe.

Students enjoyed engaging sessions with top entrepreneurs like Noel Nfebe (WhileSmart), Peter Finjap (Toukou Banix), Ayo Lasisi (Illevus) and Serge Boupda (Diool), as well as a high-stakes pitch competition judged by Elad Forwa (Ikonz), Martin Elonge (Mountain Hub) and Paul Mbua (Zitech Hub), while gaining practical insights on tackling business challenges & seizing market opportunities.



Block 5 delivered an intellectually rich blend of mathematical rigour, computational techniques, and real-world application across five distinct yet interconnected courses. Prof. Marco Merkli (Memorial University, Canada) opened the block with Mathematical Tools for Quantum Theory, emphasising the foundational role of functional analysis, particularly Hilbert spaces and operator theory, in shaping quantum mechanics and related disciplines.
His course underlined how extending linear algebra into infinite dimensions enables a deeper grasp of quantum phenomena.

Prof. Ferdinand Evers (University of Regensburg, Germany) continued this thread with Computational Quantum Mechanics, reinforcing the vital bridge between abstract mathematical frameworks and practical implementations in computing, chemistry, and material science.

Both quantum courses sharpened students' analytical toolkits for cutting-edge quantum research.

Review Courses

Shifting gears to machine learning, Dr. Kartoue Mady Demdah Evers (Canada) guided students through Computer Vision, blending theory with practice through image preprocessing, representation, and sequence modelling using Hidden Markov Models.

A strong emphasis on Convolutional Neural Networks (CNNs) enabled students to tackle advanced vision problems confidently in Applications in Biostatistics.
Also, with the course "Applications in Biostatistics", Dr. Sarah Rhodes, Dr. Hui Guo, Dr. Zewen Lu and Dr. Tracey Farragher (Manchester University, UK) steered learners through rigorous statistical techniques for health research, covering causal inference, longitudinal analysis, and quasi-experimental designs, all contextualised through real-world medical studies.

Finally, with Prof. Dr. Florian Zaussinger (Mittweida University, Germany), in a course on Numerical Fluid Dynamics merged theory with computation, introducing tools like OpenFOAM for simulating fluid flows and solving PDEs. Students examined stability, convergence, and algorithm design in fluid systems, honing their problem-solving skills.

Collectively, the block offered a multidimensional learning experience bridging physics, computation, statistics, and machine learning. Each course provided students not only with technical mastery but also with cross-disciplinary insights.

AIMS Cameroon Recruitment Campaign in Full Swing!

The AIMS Cameroon 2025/2026 recruitment campaign is actively reaching top universities across the country to engage with aspiring students.

On February 15, Prof. Mama Foupouagnigni led an insightful session at the University of Yaounde 1. Dr. Daniel Tcheutia continued the momentum on February 18 at the University of Ngaoundéré, sharing opportunities at AIMS.

The campaign will conclude with Nathalie Wandji leading sessions at the University of Maroua on February 26 and at the Higher Teachers Training College of Maroua on February 27, ensuring students gain firsthand knowledge about the program and application process.

Weekly Seminars

Between February 5 and 26, 2025, a diverse series of expert talks and academic sessions enriched the AIMS Cameroon learning experience, spanning topics from scientific communication to advanced numerical methods.

Professor Paulo Canas Rodrigues of the Federal University of Bahia opened the month with a dynamic session on scientific communication, focusing on how to craft effective talks and well-structured reports. He emphasised storytelling, visual aids, and audience engagement as critical elements in communicating complex information.

On the same day, Dr. Jake Leonard Nkeck from the University of Buea delved into numerical analysis, presenting defect-correction Finite Element Methods for solving elliptic and parabolic problems on polygonal domains. His session addressed how singularities at corners can affect solution accuracy, and he demonstrated numerically the robustness of the adapted methods.

On February 12, Professor Ralf Wunderlich from BTU Cottbus-Senftenberg explored the stochastic optimal control of epidemics, highlighting techniques like Kalman filtering and backwards recursion to manage outbreaks under uncertainty. He showed how these methods inform cost-effective policy decisions despite incomplete data. The following day, AIMS student Mouncharou Fadimatou Zaraou presented on exotic options pricing, applying the Black-Scholes model and Monte Carlo methods to financial derivatives like Asian, Lookback, and Bermudan options. Her talk blended theoretical finance with practical examples in risk and investment analysis.

On February 26, alumna Wangari Kimotho offered a compelling overview of Geographic Information Systems (GIS), spotlighting open-source tools like QGIS and Google Earth Engine. Her talk demonstrated how GIS empowers environmental monitoring, spatial analysis, and policy planning. That same day, AIMS tutors delivered a workshop on master essay writing, clarifying structural expectations and content quality standards. Students learned how to craft coherent, rigorous, and impactful academic reports. The combined effect of these talks was both intellectually stimulating and practically empowering. Each session contributed unique perspectives and technical insights.

The month bridged theory with application across mathematics, epidemiology, finance, geography, and academic writing. Students were left better equipped to conduct research, communicate ideas, and engage with real-world problems.