

<p>Scientific Board</p> <p>Carolina Araujo Fernando Cukierman Alicia Dickenstein Frednard Gideon David Iyambo Paola Frediani Carlos Gustavo Moreira Semu Kassa Winifred Mutuku Frank Neuman Paolo Piccione Marcello Dell'itala Pierguido Sartì</p>	 <p>NAISSMA 2022</p> <p>Namibian International Spring School in Mathematics</p> <p>UNAM, October 23-29, 2022</p> <p>https://www.marm-lms.unam-namibia.org/NAISSMA/NAISSMA_2022.htm</p>	<p>Organizing Committee</p> <p>Sigfried Amukugo Letterio Gatto Manabesh Debalike Joannes Djamba Elise Lazarus Jesse Lichela Giovanni Marelli, Martin Mugochi, Samuel Nuuguulu, Choohe Siacohoono Generosa Simon Josephine Wairimu Kagunda</p>
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NAISSMA is the acronym of

Namibian International Spring School in Mathematics,

whose first edition will be celebrated on October 2022, with the ambition to be a yearly stable high level intensive Schools in Mathematics, to be held within the Namibian Spring time. The purpose is to offer further training opportunities to Namibian scholars as well as students growing at **University of Namibia (UNAM)** and at the **Namibian University of Science and Technology (NUST)** along with academic institutions in neighboring African Countries (like, e.g., South Africa, Zimbabwe, Angola, Tanzania, Kenya, Etiopia...).

NAISSMA's prior mission is to promote Mathematics, according to the guidelines of the program *Mentoring African Research in Mathematics*, mainly supported (besides the *International Mathematical Union (IMU)* and the *African Millennium Mathematics Science Initiative (AMMSI)*) by the *London Mathematical Society (LMS)*, which is a charity organization, as a crucial tool to boost concrete development actions for Science and Technology not as an end to itself, but with a long sight view to the a structural promotion of equality and social progress not depending on UNA TANTUM intervention.

At the same time, through an innovative involvement of the master students in the initiative, **NAISSMA** will provide unprecedented opportunities to learners to approach the academic medium. A first instance of such goal was already pursued thanks to the organization, in 2022, of the **First Namibian Mathematics Olympiad (NMO)**, thanks to the foresight of the *Namibian National Commission for Science, Research and Technology (NCRST)*, to which **UNAM** and **LMS-MARM** have offered

support and collaboration, not to mention the high moral patronage of the London Mathematical Society as a whole and the Italian Embassy in Pretoria.

The idea of looking for innovative ways to promote the mathematical culture is borrowed from the declaration of the strategic goals indicated in the Vision 2030 Agenda for Sustainable Development Goals by the United Nations. In particular NAISSMA meets the following SDG targets [4.9](#), [4A](#), [5.8](#), [17.6](#), [17.8](#), [17.9](#).

The acronym **STEM** is considered in the United Nations documents as a strategic player to the ends of boosting social growing and equality. The final **M** stands for mathematics. Mathematics is at once very powerful (it suffices to think to the strategical studies on Big Data Science) and the cheapest from the point of view of research funding.

NAISSMA aims to be a worksite inspired by the practice of lifelong learning, to whom all the strata of Namibian society (and partners) are welcome to participate, to trust an ambitious project needing low investment from the supporting institutions which, in turn, will be widely repaid in a very close medium term.

The **first 2022 Edition** will be held at **UNAM**, due to its designation as first venue for the implementation of the **LMS-MARM** program, while the 2023 edition will take place at **NUST**, in agreement with a natural alternation pattern and with the encouraging support of the Namibian National Council for Science, Research and Tecnology (**NCRST**).

NAISSMA: Why? The Spring School framework ideated by LMS-MARM, **UNAM** and **NUST**, with the cooperation of **NCRST**, is an ideal parameter for promoting the academic actions adressed to overpassing, through slow but effective changes, situations of objective inequalities in all the societies in general and African in particular. On one hand, short term advanced schools are a flexible ingredient in the academic landscape with room for year-to-year corrections, adapting to local needs, available teaching force, and so on, whereas in-semester courses are bound in patterns with more inertia and desire for stability rather than innovation.

The purpose of the **NAISSMA's First Edition**, to be held in the month of October 2022, is to create the condition for the **self-sustainability** of the initiative. The support of all the partner institutions can be thought of as an investment which will be widely repaid after little time by suitable tuning the self-financing mechanism.

Once the First Edition will be successfully celebrated, it will be easy to implement the next ones with the support of many other African and not African Scientific Institutions. That is why one wishes to promote an unprecedented synergy between scientific, productive and diplomatic institutions to realize at best **NAISSMA 2022**, to turn it into a selfmoving engine for all the future editions from 2023 on.

Its peculiar designed flexibility will make **NAISSMA** schools the ideal instrument for experimentation towards greater networking involvement and integration with the European and, in general, non African academy, constituting a key methodological ingredient in the project aimed to enhance the international projection of **UNAM** and **NUST**. Such flexibility also allows for rapid change in funding patterns, which on one hand ensures that the **LMS-MARM** action can be quickly reflected and measured on economical indicators, and on the other hand serves as precious feedback for its efforts, to guide further developments.

Finally, it is the Spring environment that allows for easier integration of extra-university activities, and permits capturing pre-university students for the activities proposed without disrupting their usual education, and without constituting neither a competitor to it nor a conceptual extension of it, but rather a different experience.

NAISSMA and the THIRD MISSION of the University.

Mathematics is the ideal science for both flexible movement of teaching labour and student mass, being in all respects the most universal branch of science, ubiquitous in all cultures, with great potential for being exploited also as the most democratic: no special equipment is needed for its practice, no particular background is required other than the willingness to mental work, demonstrated by most people in their positive attitude towards games and riddles, etc. (of course educational and social background affects children's aptitude even for mathematics, but much less so than for other branches of science). Mathematics is also ideal for these purposes in view of its recognised utility in the rest of science and technology and as a pillar of the society of knowledge.

More precisely, as **H. E. Silvia Marrara**, Deputy Ambassador of Italy in Pretoria, declared during the Award Ceremony of the first **NaMO** *“Mathematics and the STEM in general are fundamental disciplines that feed the technological progress of a country. They are the fundamental bricks of the knowledge and technology. In brief, STEM education helps to solve the challenges from health to technology, helps to solve the challenges the world faces today. STEM raises social awareness. STEM is food for our next generation thoughts”*

The expected impact. Having illustrated the ideal nature of **NAISSMA** as target for the general aims of the LMS-MARM action, and thereby the appropriateness of the activities proposed, it is worth stressing also the way the extra-educational aspects of the action benefit from it.

It is through the outreach activities and inclusive nature of the proposed spring school design that it achieves the characteristics that make it stand out to attract the funding, academic weight and student interest that guarantees its sustainability as a capacity development, and it is through close interaction with key stakeholders such as local authorities and private sector representatives that the public visibility is attained and that in turn makes the interaction possible. **NAISSMA** aims to propose a model of integrated growth of the society and the productive world surrounding the academic medium.

All told, the various design choices, with summer schools, mathematics, inclusion as key words, corroborate to amplify the effects envisioned and underline the feasibility of the enterprise.

The main specific results, which are going to be achieved, will constitute a sustainable initiative of higher-education action in Namibia, competitive at national and regional level, capable of attracting funding (public and private), high-quality lecturers and students; distinguished in its social commitment through integrated outreach activities; to train and equip the academic and technical staff managing the universities. This achievement in turn is an instrument in helping less-favoured social strata to access to higher education through cross-level integration. **NAISSMA** aims to turn into a reference point beyond the university sphere, for students with special vocation for mathematics or exact sciences who wish to pursue studies in these directions, but also for anybody with curiosity towards the subject, giving young learners a unique opportunity to get a

glimpse into the academic world, and a unique opportunity for math students to play the role of tutors, to discover the pleasure of knowledge dissemination.

Achieving these goals is in turn important for the sustainability of the **LMS-MARM** project outcomes, as it is an essential factor in obtaining the branding necessary to enhance the UNAM and NUST vocation to be excellence autonomous actors on the academic scene of the African continent and able to develop strong partnerships with European Higher Education Institutions and to boost and promoting their intrinsic vocation to work for all the society as a whole, breaking down social walls and building bridges among people.