International Day of Mathematics, IDM@UNIMAS

14th March each year is the date chosen to celebrate the International Day of Mathematics (IDM). The date is chosen for this worldwide celebration is due to many countries commemorate Pi (π) Day on that date as they write the date as 3/14 and it is a fact that the value of π is approximately 3.14.

The International Day of Mathematics project is led by the International Mathematical Union with the support of numerous international and regional organizations from all over the world resulting in the proclamation of the date at the 40th session of UNESCO General Conference held on November 26, 2019. Thus, the first International Day of Mathematics was launched and celebrated worldwide on March 14, 2020.

This year, the Faculty of Computer Science and Information Technology through their Mathematical-based undergraduate programme, the Computational Science Programme will also join in the celebration by organizing some talks and forum. As

this year the date falls on Sunday, the faculty will have the event on the 15th March 2021 virtually via the Webex platform at 1400 hrs (GMT + 8). The event will see two speakers namely Associate Professor Dr Norma Alias from Universiti Teknologi Malaysia who will share a talk on "Mathematics for Big Data" and the faculty's own Associate Professor Dr Jane Labadin who will talk on "Mathematics for Epidemics". The event will end with a forum discussing on the theme of the celebration: "Mathematics for a Better World".

Mathematics plays an essential role in almost every expanse of our daily life: from patterns in nature to climate science, from search engines to medical imaging, from the optimization of transport networks to Artificial Intelligence, from the modelling to the control of epidemics. The importance of Mathematics is evident from the many applications that benefit from it. What better way of spreading the love of Mathematics if not to start by acknowledging its importance and celebrate the day with UNIMAS.

Join us to celebrate IDM with UNIMAS!

Date: 15 March 2021, Monday
Time: 2-4pm
Webex link: http://bit.ly/idmunimas2021
Event number: 159 826 1851
Event password: idmwebinar14

Talk 1: Mathematics for Epidemics

Associate Professor Dr Jane Labadin
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Abstract

As the world is going through the current pandemic, disease modelling has become an important tool in understanding the epidemic spread patterns and evaluating decisions of disease control. This is evident from the rapid growth of published articles particularly on modeling and estimating the trend of COVID-19 spread. In this talk, the fundamental of mathematical modelling via compartmental modelling will be briefly introduced. Although, epidemiology has become cross disciplines with mathematics causing a sheer development of mathematical and computational approaches to epidemic modelling, the talk will focus on the conventional disease models. It is pertinent to demonstrate how mathematics is used in predicting and projecting the course of disease. Based on the prediction of the disease spread, the intervention can be simulated so that decision can be constructed. The talk will include such simulations for selected diseases.

About the speaker

Jane Labadin is an Associate Professor at the Faculty of Computer Science and Information Technology as well as Senior Research Fellow at the Institute of Social Informatics and Technological Innovation, Universiti Malaysia Sarawak (UNIMAS). She received her Ph.D. in Computational Mathematics specializing in Fluid Dynamics from the Imperial College of Science, Technology and Medicine, London, UK in 2002 and has since actively contributed her expertise mainly in the modeling of dynamical systems. This is evident from the research students she supervises as well as the research grants that she leads. Thus far, there are seven PhD graduates and nine Master graduates where Assoc. Prof. Dr Jane is the main supervisor. She has completed three MOHE research grants and five UNIMAS research grants of which she was the principal investigator. Apart from these, she contributed as a co-researcher in more than ten other research grants. She is currently supervising a team of 4 postgraduate students and leading two MOHE and one external research grants. Her research findings have been published and presented in many well-known journals and conference proceedings, locally and abroad, and has high citation rate. She is also actively involved in exhibiting her research outputs and have successfully obtained few awards. Her expertise is always sought after evident from the reviewers' request from international conferences and journal editors.

Talk 2: Mathematics in Big Data

Associate Professor Dr Norma Alias
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Abstract

Big data is an inherently interdisciplinary research area, crossing academic disciplines in various research groups within an applied and fundamental mathematics. Mathematics in big data are leading a large data science initiative, developing predictive model and making a decision. Intricate combination of applied and pure mathematics, statistics and operations research, computer science and programming are required to understand the ideas and concept working with data. The role of mathematics in big data analytics will create intelligent solution and provide better prediction of grand challenge applications. Consistent with data management, machine learning, deep learning and performance measurement walk through the mindset behind the mathematics of statistical expertise. Data modeling and data analysis challenges raised by researchers open big opportunities for governing novel mathematical models and solving a large sparse simulation on the latest computer generation platform. 3 types of philosophical frameworks will be highlighted involving competence to handle large data streams, critical big data literacy and digital ethics concern. As a conclusion, mathematics in big data integrated mathematical modeling, machine learning algorithm, data mining, high performance computing platform, measurement indicators for better prediction and accurate decision making.

About the speaker

Norma Alias is currently the Task Force of UTM Online Teaching and Learning, Associate Professor of Mathematical Sciences Department, and 12 years as Associate Research Fellow of Ibnu Sina Institute for Scientific and Industrial Research (IIS), Universiti Teknologi Malaysia (UTM). She was appointed as an Associate Professor and Research Fellow at King Saud University, Saudi Arabia. She is a member of the Malaysian Mathematical Sciences Society. Completed a PhD degree in Industrial Computing (Parallel Computing) in 2004, AP Dr Norma has since specialized into diverse fields including mathematical modeling, big data simulation, industrial computing, scientific computing, high performance computing, shared-distributed parallel computing system, grid computing and software development. She has successfully supervised 13 PhD and 32 MSc. She is currently supervising 8 PhD students, 30 MSc with Philosophy students and 2 postdoctoral fellows. She is actively examining postgraduate students of local and international universities.

AP Dr. Norma has excellent academic and research track record having published over 200 publications and has held a number of editorial board memberships for 8 international and national journals. The 2016 and 2017 Venus International Women

Award winner for Distinguished Woman in Science, AP Dr. Norma is still very active in research innovation and publications, securing national and international grants and has continuously contribute in conducting creative courses, presenting as plenary speaker and more specifically in industrial computing research and innovation.