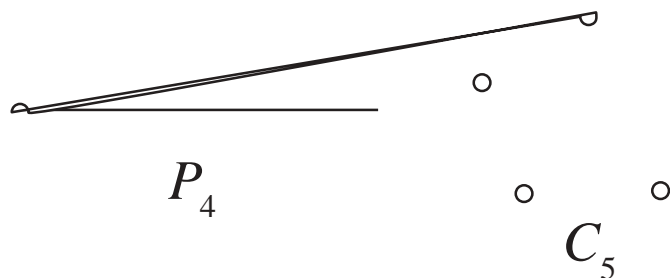
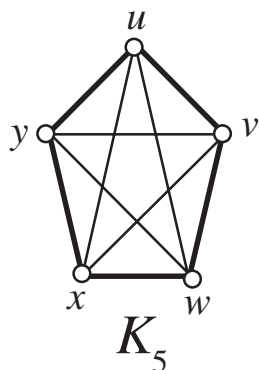


UNFOLDING COMPLETE GRAPHS, PATHS, AND CYCLES

If two nonadjacent vertices of a graph G having a common neighbor are identified to obtain the graph H , we say that H is a 1-fold of G . We also say that G is a 1-unfold of H . For convenience, any graph G is regarded as a 0-fold of G . If k is any positive integer, we say that H is a k -fold of G if H can be obtained from G by folding G iteratively k times. Thus, a k -fold of G is a 1-fold of a $(k-1)$ -fold of G . If H is a k -fold of G , we call G a k -unfold of H . The symbol $F^{-1}(G)$ denotes the set of all k -unfolds of G for $k \geq 0$. In this paper, we investigate the sets $F^{-1}(G)$, where G is a complete graph, a path, or a cycle.



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Research Interests:
Graph theory and combinatorics
and math software

Estimation of the Natural Period at Ambient Conditions of Moment-resisting Frame (MRF) Buildings Using Neural Networks
by Andres Winston C. Oreta

The Rising Spirit of Feminism
by Mary Janet M. Arnado

ISOLATION, STRUCTURE ELUCIDATION, AND ANTIMICROBIAL ASSAY OF SECONDARY METABOLITES FROM FIVE PHILIPPINE MEDICINAL PLANTS

The following are the abstracts of five papers which resulted from studies on five medicinal plants.

The leaves of *Blumea balsamifera* afforded icthyothereol acetate (**1**) and cryptomeridiol (**2**), lutein, and β -carotene. The structures of **1** and **2** were elucidated by extensive 1D- and 2D-NMR spectroscopy, while those of lutein and β -carotene were identified in comparison with literature data. Antimicrobial tests indicated that **1** has moderate activity against the fungi *Aspergillus niger*, *Trichophyton mentagrophytes*, and *Candida albicans*, against which sample **2** has low activity against these organisms. Both compounds have no activity against *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Bacillus subtilis*, and *Escherichia coli*.

The rhizomes of *Curcuma domestica* afforded curcumin (**1**), bisacurone (**2**), a mixture of ar-turmerone (**3**), b-turmerone (**4**), a-turmerone (**5**), and ar-curcumyl alcohol (**6**). These compounds were identified through NMR spectroscopy and by comparing their spectroscopic data with those reported in the literature. Antimicrobial tests on samples **1** to **6** indicated that **2** to **6** have moderate antifungal activity against *A. niger*, while **3** to **6** have moderate antibacterial activity against *P. aeruginosa*.

The freeze-dried unripe fruit of *Achras zapota* afforded a mixture of β

α -amyrin pentanoate (**1b**) in a 2:1 ratio, a mixture of spinasterol (**2a**) and taraxerol (**2b**) in a 2.4:1 ratio, and a fatty acid ester of oleanolic acid (**3**). Their structures were identified through NMR spectroscopy. Samples **1** and **3** were tested for antimicrobial activity by the agar-cup method. Sample **1** showed moderate activity against the fungus *C. albicans* and low activity against the fungi *A. niger* and *T. mentagrophytes*. Sample **3** which gave low activity against *C. albicans* and *A. niger*, was inactive against *T. mentagrophytes*. The samples were inactive against the bacteria *E. coli*, *P. aeruginosa*, *S. aureus*, and *B. subtilis*.

The aerial parts of *Centella asiatica* afforded b-farnesene (**1**) and neophytadiene (**2**). Their structures were elucidated by extensive 1D- and 2D-NMR spectroscopy. Sample **2** exhibited moderate antifungal activity against *C. albicans* and *A. niger* and low activity against *T. mentagrophytes*. Sample **2**, which also showed low antibacterial activity against *E. coli* and *P. aeruginosa*, was inactive against *S. aureus* and *B. subtilis*.

The flowers of *Brugmansia suaveolens* afforded β -carotene, β -sitosterol, β -stingmasterol, 3β -hydroxycera-8(26), 14-dien-21-one, an lansiolic acid by silica gel chromatography. Their structures were identified by comparing their ^1H NMR spectral data with those reported in the literature.

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THE DIFFERENCES IN THE PERFORMANCE OF DLSU PE STUDENTS (SY2001-2002) IN A 1000-M WALK/RUN AND Tw (1 /44.7

Movement is an essential factor in one's life. However, movement often causes injuries, especially if the individual lacks the ability to live an active lifestyle (i.e., active in sports), which leads to a decreased functional capacity.

In order to address one's lack of active lifestyle, exercise programs are designed. Running, for example, is the most natural and common way of exercise that would improve a person's fitness and improve his/her performance and functional capabilities.

Because of this principle, the De La Salle University-Manila PE Department requires PE students to carry out a 1000-M walk/run and to fulfill the battery test for cardio-respiratory endurance fitness test. However, since some people cannot tolerate running because of certain injuries, an alternative exercise program called water running or 400-M/walk-water run has been developed.

This study presents a quantitative research on the differences in the performance of DLSU PE students (SY 2001-2002) in a 1000-M/walk-run and 400-M/walk-water run. Different measures are considered such as heart rates of the participant while resting, training heart rates, recovery heart rate and time of completion, gender, and age.

Data were collected from 80 participants who underwent both the 1000-M/walk-run and 400-M/walk-water run during the first and second week, respectively, of their PE classes. Results showed that there were significant differences between the 1000-M/walk-run and 400-M/walk-water run based on recovery heart rate, training heart rate and time of completion. The 400-M/walk-water run followed the same range of motion as running on land but the presence of water eliminated the impact present during land-based running, thus helping lower the heart rate. The results, based on the time of completion, showed that water running significantly

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Research Interests:

Acting, coaching, facilitating, officiating,
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AN ANALYSIS OF THE PHILIPPINE INTERREGIONAL MARKET INTEGRATION FOR RICE

This study examines the existence of the spatial market integration of the different pairs of regional rice markets in the Philippines. By employing modern time-series econometric techniques, the research uncovered compelling pieces of evidence of strong steady-state linkages among the various pair-wise combinations of regional rice markets, with only an insignificant segregated route. The main conclusion drawn from various inference procedures undertaken in the study is that despite the geographic segregation of regional rice markets and the fragmented and often inefficient rice distribution system, price signals and other market information are being transmitted efficiently across markets, thus, negating the potential occurrence of unexploited arbitrage opportunities.



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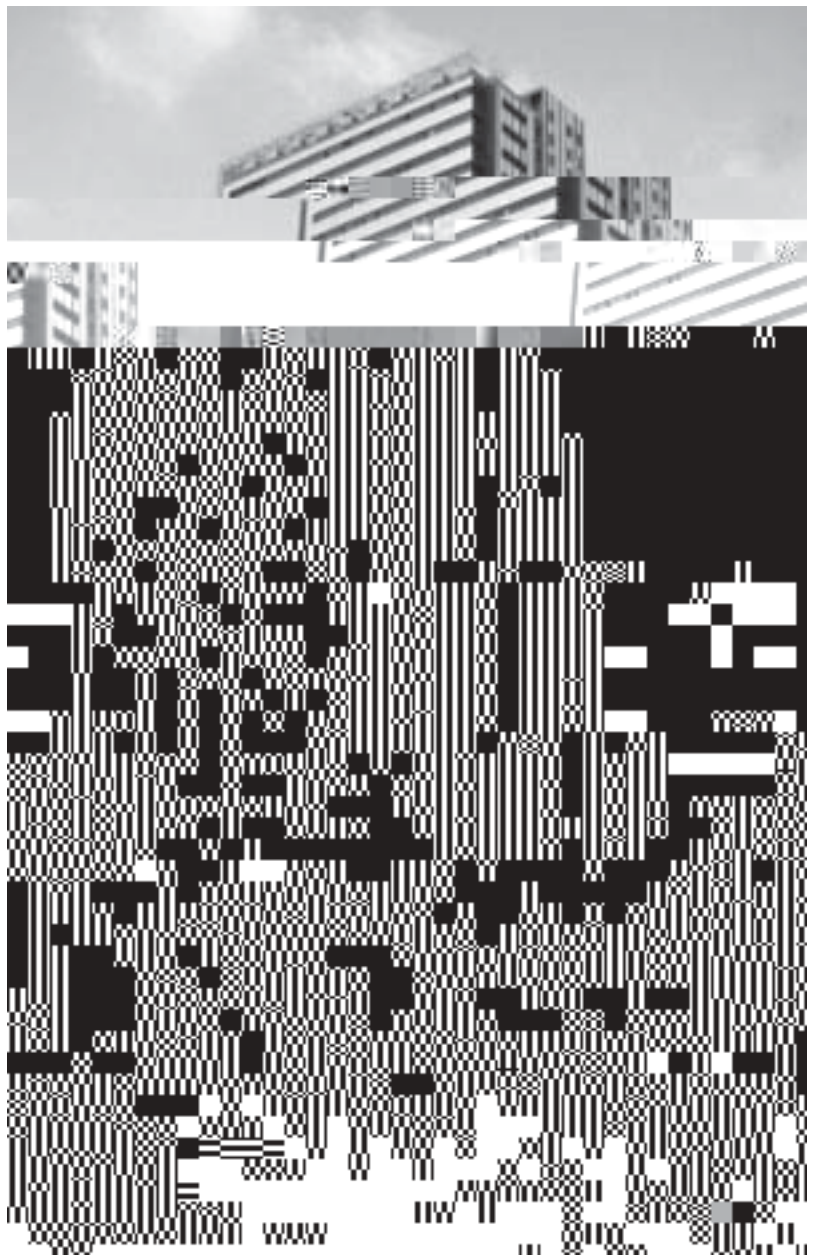
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ESTIMATION OF THE NATURAL PERIOD AT AMBIENT CONDITIONS OF MOMENT-RESISTING FRAME (MRF) BUILDINGS USING NEURAL NETWORKS

The natural period of vibration is an important dynamic property of a building since it characterizes the behavior and performance of the structure to external forces. An estimate of the fundamental period of a building is useful to a structural engineer, civil engineer, or urban disaster manager. This study illustrates the use of neural networks in estimating the period of reinforced-concrete (RC) buildings. Data from ambient vibration measurements conducted on medium- and high-rise buildings in Metro Manila were used to train a neural network. A model for estimating the period of RC moment-resisting space-frame buildings and RC dual buildings that use global building parameters (i.e., the type of structural system and the height of the building) was developed and its performance was evaluated and compared with existing empirical formulas.



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General structural engineering and
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In reviewing theorizing efforts on Filipina feminism by Filipino scholars published locally, the nationalist feminism stands out as a dominant theme



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