

HKU Summer Institute 2021

High School Programmes

Course Details													
Course Code	HS-MATH1641												
Course Title	Mathematical Laboratory and Modeling												
Credit Bearing Programme	6 credits Upon satisfactory completion of the course, students would be awarded 6 credits. These credits would be counted towards the students' studies in the Faculty of Science at HKU (by applying for an advanced standing of the course). Recognition by other HKU Faculties would be subject to the approval of individual Faculties.												
Course Description	This course introduces elementary mathematical modeling techniques. Also, a powerful and free software Scilab would be taught and used to study models in Physics, Chemistry, Biology, Ecology and Management.												
Course Outline	In this course, we shall 1. introduce fundamental programming techniques in SciLab, 2. demonstrate how mathematical models are formulated, and 3. how to interpret these models with the help of computer. Some basic techniques in calculus and linear algebra will be covered in due course.												
Learning Outcomes	On successful completion of this course, students should be able to: <table border="1" data-bbox="456 1157 1422 1629"> <thead> <tr> <th colspan="2">Course Learning Outcomes (CLO)</th> </tr> </thead> <tbody> <tr> <td>CLO 1</td> <td>recognize the importance of numerical methods in mathematical modeling</td> </tr> <tr> <td>CLO 2</td> <td>demonstrate basic algebraic and arithmetic computations in the Scilab environment</td> </tr> <tr> <td>CLO 3</td> <td>write and interpret programs in Scilab programming language</td> </tr> <tr> <td>CLO 4</td> <td>solve simple numerical problems by using interactive Scilab commands</td> </tr> <tr> <td>CLO 5</td> <td>solve moderately complicated numerical problems by writing Scilab programs</td> </tr> </tbody> </table>	Course Learning Outcomes (CLO)		CLO 1	recognize the importance of numerical methods in mathematical modeling	CLO 2	demonstrate basic algebraic and arithmetic computations in the Scilab environment	CLO 3	write and interpret programs in Scilab programming language	CLO 4	solve simple numerical problems by using interactive Scilab commands	CLO 5	solve moderately complicated numerical problems by writing Scilab programs
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Study Load	36 contact hours + 120 learning hours												
Assessments	Assignments / in-class activities (20%), two midterm tests (30%) and one written examination (50%) No supplementary examination will be offered.												
Language of Instruction	English												

Class Schedule	
Course Period	July 12 - 30, 2021
Class Day & Time	Monday, Tuesday, Thursday & Friday 09:30 - 12:30 (Note: Prerecorded lectures, plus live lectures and live tutorials which would be recorded. Arrangement of Tests and exam is not fixed yet; but it would be in-class or would be held in evening.)
Venue	This course will be conducted via Zoom or other platforms (to be announced).

Application	
Pre-requisite	S5-S6, or Equivalent, in the academic year 2020-2021. Applicants should provide a list of current courses plus the examination results of the first, second and third most recent semesters.
Remarks	This course is the same as the summer course MATH1641 offered to non HKU undergraduate students. Accommodation: Not Applicable
Online Application	Please visit the <u>webpage of "MATH1641 Mathematical Laboratory and Modeling"</u> for <u>Online Application</u> .
Course Fee	HK\$8,250
Early Bird Offer	Apply on or before February 28, 2021 <ul style="list-style-type: none"> ▪ 5% discount on course fee
Summer Scholarships offered by HKU Academy for the Talented	Academy members <ul style="list-style-type: none"> ▪ 20% discount of the course fee
Deadline for Application	June 14, 2021

Enquiries
<p>Tel: 2241 5199 / 2859 2250 Email: AMGS@maths.hku.hk Url: http://www.math.hku.hk/ Department of Mathematics, The University of Hong Kong</p>