

HKU Summer Institute 2021

High School Programmes

| Course Details | | | | | | | | | | | | | |
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| Course Code | HS-MATH1011 | | | | | | | | | | | | |
| Course Title | University Mathematics I | | | | | | | | | | | | |
| 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 | Calculus is a branch of mathematics that finds wide applications in science, economics and finance, engineering and many other areas. This is a first course in one-variable calculus. | | | | | | | | | | | | |
| Course Outline | <ul style="list-style-type: none"> ▪ Pre-calculus topics (set theory, combinations and permutations, mathematical induction, binomial theorem, exponential, logarithmic and trigonometric functions) ▪ Limits and Differentiation with Applications ▪ Indefinite and Definite Integrals with Applications | | | | | | | | | | | | |
| Learning Outcomes | <p>On successful completion of this course, students should be able to:</p> <table border="1"> <thead> <tr> <th colspan="2">Course Learning Outcomes (CLO)</th> </tr> </thead> <tbody> <tr> <td>CLO 1</td> <td>use the set notations; calculate probabilities; and prove by induction</td> </tr> <tr> <td>CLO 2</td> <td>solve problems involving exponential, logarithmic and trigonometric functions</td> </tr> <tr> <td>CLO 3</td> <td>evaluate limits and derivatives</td> </tr> <tr> <td>CLO 4</td> <td>compute simple definite and indefinite integrals</td> </tr> <tr> <td>CLO 5</td> <td>solve practical problems such as determining maxima and minima; finding area</td> </tr> </tbody> </table> | Course Learning Outcomes (CLO) | | CLO 1 | use the set notations; calculate probabilities; and prove by induction | CLO 2 | solve problems involving exponential, logarithmic and trigonometric functions | CLO 3 | evaluate limits and derivatives | CLO 4 | compute simple definite and indefinite integrals | CLO 5 | solve practical problems such as determining maxima and minima; finding area |
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| Study Load | 36 contact hours + 120 learning hours | | | | | | | | | | | | |
| Assessments | <ul style="list-style-type: none"> ▪ Assignments and in-class activities (10%) ▪ Two tests (40%) ▪ Final examination (50%) <p>No supplementary examination will be offered.</p> | | | | | | | | | | | | |
| Language of Instruction | English | | | | | | | | | | | | |

| Class Schedule | |
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| Course Period | June 21 - July 9, 2021 |
| Class Day & Time | Monday, Wednesday & Friday Lecture 09:00 - 12:00; Tutorial 12:00 - 13:00 (Some live lectures and tutorials via Zoom + some pre-recording lectures and tutorials. All the live lectures and tutorials will be recorded and uploaded on the Moodle after class. No problem if students cannot attend some of the lectures or tutorials. Tests and exam will be arranged in the evening via Moodle. Test 1: June 30, 2021 (Wed) 19:30 - 20:10 Test 2: July 7, 2021 (Wed) 19:30 - 20:10 Final exam: July 9, 2021 (Fri) 19:30 - 21:00) |
| Venue | This course will be conducted via Zoom or other platforms (to be announced). |

| Application | |
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| Pre-requisite | S4-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 MATH1011 offered to non HKU undergraduate students. Accommodation: Not Applicable |
| Online Application | Please visit the <u>webpage of "MATH1011 University Mathematics I" for 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 | May 31, 2021 |

| Enquiries |
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