

The Chinese University of Hong Kong  
Faculty of Science  
Science Academy for Young Talent

Summer Courses 2021  
Course Outline

*SAYT1005 Introduction to University Physics*  
大學物理入門

**Introduction:**

Systematically introduce the basic concepts for university physics in mechanics, including the concept of vectors, motions in 2 dimensions and 3 dimensions, and the relation between force and motion described by Newton's three fundamental laws. It will lay a solid foundation for the students to start the physics courses at the university level.

本課程將系統講授大學物理的力學，包括矢量、運動學、以及運動與受力的關係。牛頓三大定律在平動與轉動中的應用、動量與能量守恆等關鍵物理知識將是本課程強調的重點。本課程將為學生的大學物理學習打下堅實的基礎。

**Medium of Instruction:** English

**Organising Unit:**

Department of Physics, Faculty of Science, CUHK

**Teacher:**

Prof. Xu Lei

Department of Physics, Faculty of Science, CUHK

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**Demonstrator:**

To be determined

**Course Content:**

|                                                      |                                                                                                                            |
|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| 16 August 2021<br>(Monday)<br>9:30 am – 12:00 pm     | <b><u>Lecture:</u></b><br>• Ch0-Introduction, Ch1-Vectors and Motion<br><b><u>Assessment:</u></b> Attendance, homework     |
| 17 August 2021<br>(Tuesday)<br>9:30 am – 12:00 pm    | <b><u>Lecture:</u></b><br>• Ch1.5-Motion in 2D and 3D<br><b><u>Assessment:</u></b> Attendance, homework                    |
| 18 August 2021<br>(Wednesday)<br>9:30 am – 12:00 pm  | <b><u>Lecture:</u></b><br>• Ch2-Force and Motion<br><b><u>Assessment:</u></b> Attendance, homework                         |
| 19 August 2021<br>(Thursday)<br>9:30 am – 12:00 pm   | <b><u>Lecture:</u></b><br>• Ch3-Kinetic Energy<br><b><u>Assessment:</u></b> Attendance, homework                           |
| 20 August 2021<br>(Friday)<br>9:30 am – 12:00 pm     | <b><u>Lecture:</u></b><br>• Ch4-Potential Energy and Energy Conservation<br><b><u>Assessment:</u></b> Attendance, homework |
| 23 August 2021<br>(Monday)<br>9:30 am – 12:00 pm     | <b><u>Lecture:</u></b><br>• Ch5-Momentum Conservation<br><b><u>Assessment:</u></b> Attendance, homework                    |
| 24 August 2021<br>(Tuesday)<br>9:30 am – 12:00 pm    | <b><u>Lecture:</u></b><br>• Ch6-Rotation and Moment- Part I<br><b><u>Assessment:</u></b> Attendance, homework              |
| 25 August 2021<br>(Wednesday)<br>9:30 am – 12:00 pm  | <b><u>Lecture:</u></b><br>• Ch6-Rotation and Moment- Part II<br><b><u>Assessment:</u></b> Attendance, homework             |
| 26 August 2021 *<br>(Thursday)<br>9:30 am – 12:00 pm | Make-up Classes                                                                                                            |

|                                  |                                                                                                                            |
|----------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| <b>Duration</b>                  | 8 half day sessions (total 20 contact hours)                                                                               |
| <b>Date</b>                      | 16 – 20, 23 – 25 August 2021<br>26 August 2021* (make-up class)                                                            |
| <b>Time</b>                      | 9:30 am – 12:00 pm                                                                                                         |
| <b>Teaching Mode<sup>#</sup></b> | Face to Face (The Chinese University of Hong Kong)                                                                         |
| <b>Enrollment</b>                | 15 – 40                                                                                                                    |
| <b>Expected Applicants</b>       | Students who are promoting to or studying S5 - S6                                                                          |
| <b>Tuition Fee</b>               | HKD 3,300.00                                                                                                               |
| <b>Credit</b>                    | 1 University Unit<br>Certificates or letters of completion will be awarded to students who attain at least 75% attendance. |

\* This date is reserved for make-up classes in case there is any cancellation of classes due to unexpected circumstances.

# This course is offered face-to-face lessons at CUHK campus. It may switch to online teaching in accordance with the pandemic development and the policy of the university.