Gifted Education Fund: Off-school Advanced Learning Programmes

Programme No. 2023-08 (For secondary students)

Title of programme	Empowering Gifted Minds: Nurturing the Next Generation of Data Scientists
Programme provider	Department of Applied Mathematics, The Hong Kong Polytechnic University
Theme(s)	• STEAM-related mentorship programme • Self-initiated research study
Intake	40 students (Secondary 4-5 in the 2023/24 school year)
Prerequisite	• outstanding performance in mathematics; and • basic knowledge of computer programming
Programme delivery period	May 2024 to Jan 2025 (around 9 months)
Medium of instruction	Course material: English Classroom teaching/ discussion: English supplemented with Cantonese
Objectives	• **To offer an accelerated curriculum**: Provide advanced coursework in data science concepts, methodologies, and applications beyond the standard secondary school curriculum. • **To cultivate advanced analytical skills**: Develop advanced analytical skills in gifted students through rigorous coursework and hands-on projects, including data processing, statistical analysis, programming, and data visualization. • **To foster creativity and innovation**: Encourage gifted students to explore cutting-edge technologies, engage in real-world data analysis challenges, and collaborate with peers to foster creativity and innovative thinking in data science. • **To provide mentorship and guidance**: Offer mentorship and guidance from data science professionals to help gifted students navigate their educational and career paths. • **To instil passion for learning and exploration**: Inspire an interest in data science, expose students to diverse career opportunities, and foster a lifelong love for learning and exploration in the field. • **To support holistic development**: Prioritize the holistic development of gifted students by providing resources and support to enhance their personal lives, including time management, well-being, community engagement, and personal growth. • **To foster a positive impact on society**: Empower gifted students to contribute to the field of data science, solving complex problems and driving progress for the betterment of

	society.
Programme outline	This programme aims to provide a specialised educational pathway that nurtures and develops the unique talents and abilities of gifted students in the field of data science. This programme consists of 3 phases. **Phase 1: Specialised Data Science Courses, Guest Lectures & Industry Exposure (4 months)** • The data science courses aim to offer gifted students a comprehensive and well-rounded education in the field. The courses aim to equip students with the necessary skills, knowledge, and ethical understanding to excel in the field of data science. The courses will consist of one 3-hour lesson per week, between May 2024 and August 2024, totalling 42 hours in duration. • Guest lectures and industry exposure will provide valuable insights and real-world applications of data science across various domains. There will be one 2-hour guest lecture or industry exposure activity scheduled per month from July 2024 to December 2024, totalling 12 hours (6 sessions) in duration. **Phase 2: Research Capstone Project (5 months)** • Students will have the opportunity to engage in research capstone projects, allowing them to delve deeper into specific areas of interest within data science. This will promote independent thinking, problem-solving skills, and the development of innovative solutions. There will be one 1-hour capstone project meeting per week between September 2024 and January 2025, totalling 21 hours. **Phase 3: Project Presentation (8 hours)** • A dedicated project presentation will be scheduled in January 2025, serving as a culminating event for students to demonstrate their research outputs / learning outcomes. This event will provide students with the opportunity to showcase their in-depth understanding of their chosen areas of interest within data science.
Admission fee	Free of charge
Application method	Application form can be downloaded from the following webpage: https://www.edb.gov.hk/en/curriculum-development/curriculum-area/gifted/ge_fund/gef/osalp.html Please complete the application form and send it by post **on or before 19 April 2024** to the following address: Room TU732, Yip Kit Chuen Building

	Department of Applied Mathematics The Hong Kong Polytechnic University Hung Hom, Kowloon, Hong Kong (Attn: Dr Raymond Sze)
Document(s) to be submitted	• a completed application form; and • a copy of applicant's report cards (the first and second term of the 2022/23 school year).
Enquiry	If you have any questions about this programme, please contact: Dr Raymond Sze (Associate Professor, Department of Applied Mathematics, The Hong Kong Polytechnic University) Tel no.: 2766 5642 / 2766 6946 Email: gifted.minds@polyu.edu.hk
Announcement of results	by late May 2024