

Subject Code	AP2S01
Subject Title	Enhancing Scientific Literacy through Daily Physics
Hosting Department	Department of Applied Physics
Level	2
Class Quota	80
Medium of Instruction	English
Subject Duration	Semester 2 + Summer Term
Teaching Staff	Dr. K.L. Jim, and Dr. S.H. Choy
Target Students	GUR, open-for-all
Pre-requisites	Nil
Selection of students required?	No
Subject Synopsis	<p>The topics in the course syllabus cover three areas:</p> <p>Concept and Practice of Service Learning:</p> <ul style="list-style-type: none"> • Principles, concepts and myths of service learning • Benefits of service learning to students, the university and the community • Ethical issues in service learning • Basic concepts and theories of social problems, developments and justice • Social responsibilities of global citizens as intellectuals and professionals • Proper attitudes and behaviours in service delivery • Developing a service project proposal • Effective team work and problem solving skills in service-learning projects • Reflection as a tool for learning <p>Discipline-Specific Concepts, Issues and Skills</p> <ul style="list-style-type: none"> • Principles and concepts of scientific literacy and thinking • Scientific methods and inquiry; formulation, hypothesis, prediction and experiment; • Physics concepts in force and energy, weather and climate, health and environment, and working principles of different scientific equipment • Impact of scientific literacy on society; fear of science; pseudo-science versus proto-science <p>Project-Specific Concepts, Issue and Skills</p> <ul style="list-style-type: none"> • Concepts and practices in teaching and demonstrating scientific concepts to young children, including teaching methods; Bloom's taxonomy; classroom management and development of teaching plans; communication skills and effective explanation of science principles to children without using technical jargons • Financial, cultural and socioeconomic challenges faced by children in underprivileged community • Moral, ethical and safety concerns related to teaching and supervising children

Service Project																						
What will students do to serve?	<p>In the service-learning projects, students will work in groups and be attached to the partner primary schools and/or NGOs with children coming from underprivileged communities (e.g. financial, cultural or socioeconomic difficulties) that negatively impact their learning performance. The focus of the projects will be on enhancing children's interest in learning and motivating them to explore the world of physics. In addition, through mentoring, PolyU students will serve as role models to the underprivileged children and inspire them to set higher future goals.</p> <p>The service-learning project is divided into two parts. In the first part, PolyU students will visit the after-school programmes of the primary schools and/or community centers in groups during weekdays and weekends. They will engage in small homework tutorial groups with the children and understand their needs. Small-group educational activities related to daily physics will be demonstrated. Around 24 hours of services will be allocated to these outreach activities.</p> <p>Besides outreach activities held in the primary schools and/or community centers, in-campus activities including one-day summer workshop will be held in PolyU campus. More interesting topics about physics and environment, such as concepts of force and energy in mechanical motions will be introduced via presentations, experimental demonstrations in AP's laboratories and scientific competitions. Students are expected to serve 16 hours for such in-campus activities.</p> <p>In all cases, student will be required to spend the 40 required hours rendering direct service to the targeted children. Students' behavior during services will be supervised, and their performances will be regularly assessed by on-site supervisors from AP, with comments and suggestions from serviced primary schools and/or serviced NGOs.</p>																					
Whom will students serve?	Children attending the after-school programmes of primary schools and/or the community centers																					
Where will students serve?	<table style="width: 100%; border: none;"> <tr> <td style="width: 30px;"><input checked="" type="checkbox"/></td> <td style="width: 200px;">Hong Kong</td> <td style="width: 100px;">District: Sham Shui Po</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Chinese mainland</td> <td>Province: _____</td> </tr> <tr> <td></td> <td></td> <td>City: _____</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Taiwan</td> <td></td> </tr> <tr> <td><input type="checkbox"/></td> <td>Macau</td> <td></td> </tr> <tr> <td><input type="checkbox"/></td> <td>Overseas</td> <td>Country: _____</td> </tr> <tr> <td></td> <td></td> <td>City: _____</td> </tr> </table>	<input checked="" type="checkbox"/>	Hong Kong	District: Sham Shui Po	<input type="checkbox"/>	Chinese mainland	Province: _____			City: _____	<input type="checkbox"/>	Taiwan		<input type="checkbox"/>	Macau		<input type="checkbox"/>	Overseas	Country: _____			City: _____
<input checked="" type="checkbox"/>	Hong Kong	District: Sham Shui Po																				
<input type="checkbox"/>	Chinese mainland	Province: _____																				
		City: _____																				
<input type="checkbox"/>	Taiwan																					
<input type="checkbox"/>	Macau																					
<input type="checkbox"/>	Overseas	Country: _____																				
		City: _____																				
When will students serve?	Weekday evenings during Weeks 7 to 13 of Semester 2, after Semester 2 exam and Summer Semester																					
Fee payable by students	N/A																					

Service Attributes	
Service Mode	<input checked="" type="checkbox"/> #OnlineService <input checked="" type="checkbox"/> #F2FService
Service Language	<input checked="" type="checkbox"/> #ServiceClient_Cantonese <input type="checkbox"/> #ServiceClient_English <input type="checkbox"/> #ServiceClient_Putonghua <input type="checkbox"/> #ServiceClient_OtherNonEnglish
Service Location	<input checked="" type="checkbox"/> #Location_HK <input type="checkbox"/> #Location_MainlandChina <input type="checkbox"/> #Location_Taiwan <input type="checkbox"/> #Location_Macau <input type="checkbox"/> #Location_Overseas
Enquiry	Dr. K. L. Jim (apjim@polyu.edu.hk) Dr. S. H. Choy (apshchoy@polyu.edu.hk)