

## Subject Description Form

<b>Subject Code</b>	AMA3S01
<b>Subject Title</b>	Quantitative Methods for Community Service
<b>Credit Value</b>	3
<b>Level</b>	3
<b>Pre-requisite / Co-requisite/ Exclusion</b>	Pre-requisite: AMA1006 or AMA1104 or AMA1110 or AMA1501 or AMA1502
<b>Objectives</b>	<p>The objectives of this subject are to:</p> <ol style="list-style-type: none"> <li>1. Introduce to students the concept and practice of service learning</li> <li>2. Introduce the basic techniques in survey sampling, design of questionnaires, presentation of data and data analysis</li> <li>3. Motivate students to apply their academic knowledge in quantitative methods and data analysis to identify and address the needs of the less fortunate</li> <li>4. Strengthen students' fundamental knowledge of mathematics and quantitative methods and their applications through the projects carried out for the community partner</li> <li>5. Enhance students' generic competencies of innovative problem solving, communication and teamwork</li> <li>6. Nurture students' sense of social awareness, responsibility and engagement</li> </ol>
<b>Intended Learning Outcomes</b>	<p>Upon completion of the subject, students will be able to:</p> <ol style="list-style-type: none"> <li>1. Understand the importance of quantitative analysis in addressing social issues</li> <li>2. Demonstrate mastery of the fundamental knowledge of mathematics and quantitative methods in serving the community</li> <li>3. Work effectively in teams to design a questionnaire and conduct survey to help identify the needs and preference of the underprivileged</li> <li>4. Communicate effectively with people in need and / or other stakeholders</li> <li>5. Demonstrate creativity, critical thinking skills, problem-solving skills, in designing questionnaires and analyzing data</li> <li>6. Demonstrate empathy for people in need and a sense of civic responsibility</li> <li>7. Reflect on their role and responsibilities both as a professional in their chosen discipline and / or as a responsible citizen</li> </ol>

	8. Demonstrate an excellent level of ethics in handling data in a professional way in order to respect the privacy of interviewee
<b>Subject Synopsis/ Indicative Syllabus</b>	<p>The topics in the course syllabus cover three major areas:</p> <ol style="list-style-type: none"> <li>1. Concept and Practice of Service Learning: <ul style="list-style-type: none"> <li>• Principles, concepts and myths of service learning</li> <li>• Benefits of service learning to students, the university and the community</li> <li>• Ethical issues in service learning</li> <li>• Basic concepts and theories of social problems, developments and justice</li> <li>• Social responsibilities of global citizens as intellectuals and professionals</li> <li>• Proper attitudes and behavior in service delivery</li> <li>• Developing a service project proposal / plan</li> <li>• Effective team work and problem solving skills in service-learning projects</li> <li>• Reflection as a tool for learning</li> </ul> </li>   <li>2. Discipline-Specific Concepts, Issues and Skills <ul style="list-style-type: none"> <li>• Planning of a group project which requires quantitative skill</li> <li>• Presenting the finding of the survey in a scientific way and making suggestion based on data analysis</li> <li>• The importance of quantitative methods in understanding and addressing social issues has been demonstrated by the social impact assessment conducted by Hong Kong Council of Social Service (HKCSS) and Excellence in Capacity-building on Entrepreneurship and Leadership for the Third-sector (ExCEL3) which quantifies the impact done by measuring social values before and after a specific set of inputs and actions.</li> <li>• Ethics in social research</li> <li>• Basic concepts in survey sampling design of questionnaire, data presentation and analysis</li> <li>• Data analysis includes fundamentals in hypothesis testing, simple regression and ANOVA</li> </ul> </li>   <li>3. Project-Specific Concepts, Issues and Skills <ul style="list-style-type: none"> <li>• Health, safety and other issues relevant to the service project</li> <li>• Moral and ethical concerns specific to the project and beneficiaries</li> <li>• Interview and communication techniques</li> <li>• Operational concerns of the NGOs</li> <li>• Challenges faced by the service recipients served by the NGOs</li> </ul> </li> </ol>

<p><b>Teaching/Learning Methodology</b></p>	<p>1. E-Learning Module The e-learning module is developed and delivered by the Office of Service Learning at PolyU, consisting of readings, exercises and assessments that are designed to introduce students to the basic concept and practice of service learning. Students are required to successfully complete the e-learning module <u>within the first four weeks</u> of the semester in which they are taking the subject.</p> <p>2. Discipline-Specific Lectures, Tutorials, Seminars and / or Workshops These lectures, seminars, tutorials and / or workshops are designed and conducted by the subject offering department to equip students with the discipline-specific knowledge and skills required for planning and conducting the service learning project.</p> <p>Introduction to survey sampling, design of questionnaire, presentation of data and data analysis will be taught to students. The survey project will be determined by the joint agreement between the students and the community partner. Regular meetings during tutorials will be offered to keep track of the progress and make sure the methodology being applied is appropriate. Some small classroom teaching may also be taught if the students have weak background in mathematics and statistics.</p> <p>3. Project-Specific Seminars, Tutorials and / or Workshops The project-specific seminars, tutorials and / or workshops are designed to: (a) develop students' understanding of the targeted clients / underprivileged community, as well as other issues relating to the service learning project, (b) provide training for students in generic skills in planning and delivering the service project. Experts and speakers from outside the subject-offering department (e.g. Office of Service Learning, NGOs) will be invited to contribute to some of these sessions as appropriate. Where possible, a hands-on interactive format will be used.</p> <p>Students are required to attend all of the discipline-specific and project-specific lectures, seminars and workshops and successfully complete all of the required assignments / learning tasks prior to participation in the service learning project. During these seminars and workshops, experienced volunteer and / or officials from the community partner will walk through the requirements and expectations about providing services and the ethical requirement when a student is serving at a centre or during a home visit.</p> <p>4. Service Learning Projects The service learning projects are designed to develop students' generic competencies of innovative problem-solving, teamwork and communication, and enhance students' sense of social awareness, responsibilities and engagement.</p>
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Students are required to complete a group project in order to pass this subject. The nature and the scope of this group project may include but not limited to:

- Designing an adequate questionnaire;
- Conducting a survey in the form of a structured interview with a feasible sampling method;
- Analyzing the collected data;
- Presenting findings to the community partner(s).

These potential projects target on the needs of the community partner. The actual project to be carried out will be decided by both the students and the community partner.

During the time when the students are working on their project, they are expected to have structured interviews with the underprivileged. During the interview, students are expected to conduct a survey for the community partner and understand the hardship of the underprivileged. Each interview is estimated to last about 30 minutes. Depends on the sample size required by the community partner, it is expected that each group will interview at least 60 individuals. The sense of social awareness, responsibilities and engagement will therefore be developed and enhanced when they understand how critical the situations of the people in needs are facing.

The needs of the community partner require mathematical and quantitative skills which our students possess. This subject will allow our students to apply their knowledge to help quantify the needs and preference of the people being served, which is critical to the community partner.

#### Nature of service activities

By taking this subject, students are expected to:

- Discuss and understand the situation and problems encountered by the underprivileged
- Meet with the officials and workers of our community partner and understand the daily operation and the difficulty of an NGO which provides integrated services and food assistance to the community
- Design a questionnaire and conduct a survey in the form of structured interviews to help the community partner to understand more about their service recipients, thus to enable them to serve more efficiently.
- Present their findings to the community partner and beneficiaries either in the form of presentation and/or written report.

#### Community Partners and beneficiary

We are currently having discussions with the aforementioned NGOs. At this point, Mong Kok Kai Fong Association Chan Hing Community Centre and the two centres of Baptist Oi Kwan Social Service have demonstrated willingness to collaborate given this subject is offered. Depends on the class size, the number of community partners and the scale of students' survey

	<p>projects may differ. The motivation of this subject lies in the fact that under the current funding model, a NGO needs to provide service in a cost efficient fashion. To do so, the NGO needs to understand the demand of its service receivers quickly and accurately, and to maximize the resources they have. According to the conversations so far with the community partners, potential surveys which our students may help to conduct include, but not limited to:</p> <ul style="list-style-type: none"> <li>- Performance evaluation of the community partner (usually done in every three years)</li> <li>- Social impact study, in short, this is a study about the change to the client before receiving the service and after receiving the service.</li> <li>- Other opinion surveys required by the community partner.</li> </ul> <p>With over 18% of the population living under the poverty line set by the government, the demand for assistance is large. By helping the NGO to provide service in a more efficient way implies helping more people with need.</p> <p><b>5. Reflective Journals &amp; Report and Review Sessions</b>  Students will be required to write reflective journals and reports both <u>during</u> and <u>after</u> the service learning project to demonstrate their ability to: (a) link their service learning experience with the academic focus / discipline-specific content of the subject, (b) reflect on their service learning experience to identify their learning gains as well as areas for future improvements, (c) reflect on their roles and social responsibilities.</p> <p>To guide students in using reflection as a tool for learning, and to assess their ability in achieving the above learning objectives, reflection and review sessions will also be held both <u>during</u> and <u>after</u> the service learning project. Experts and facilitators from outside the subject-offering department (e.g. Office of Service Learning, NGOs) may be invited to contribute to some of these sessions as appropriate.</p>																												
<p><b>Assessment Methods in Alignment with Intended Learning Outcomes</b> <i>(Note 4)</i></p>	<p>Students' performance in this subject will be assessed using a letter-grading system in accordance with the University's convention from grade F (failure) to A+. The relative weighting of the different assessment components are as follows:</p> <table border="1"> <thead> <tr> <th rowspan="2">Specific assessment methods/tasks</th> <th rowspan="2">% weighting</th> <th colspan="8">Intended subject learning outcomes to be assessed (Please tick as appropriate)</th> </tr> <tr> <th>a</th> <th>b</th> <th>c</th> <th>d</th> <th>e</th> <th>f</th> <th>g</th> <th>h</th> </tr> </thead> <tbody> <tr> <td>1. e-Learning Module and Project-</td> <td>10%</td> <td>✓</td> <td></td> <td></td> <td>✓</td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Specific assessment methods/tasks	% weighting	Intended subject learning outcomes to be assessed (Please tick as appropriate)								a	b	c	d	e	f	g	h	1. e-Learning Module and Project-	10%	✓			✓				
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		a	b	c	d	e	f	g	h																				
1. e-Learning Module and Project-	10%	✓			✓																								

specific seminars and workshops									
2. Performance in rendering service	30%	✓	✓	✓	✓	✓	✓	✓	
3. Reflective journal / report	20%				✓		✓	✓	
4. Project (including planning, proposal, written report and presentation)	40%	✓	✓	✓	✓	✓	✓	✓	✓
Total	100 %								

Students must obtain a pass in all of the components in order to pass the subject.

Explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes:

The e-Learning Module and Project-specific seminars and workshops will include assignments and learning tasks that are designed to assess students' ability to understand the importance of quantitative analysis in addressing social service (ILO a), and to link service learning with the academic content of the subject, their empathy for the underprivileged community (ILO f) as well as their understanding of their role and responsibilities in society (ILO g).

Students will be asked to write proposals for the service projects as preparation for service. These proposals will demonstrate their ability to apply their discipline-specific as well as other knowledge and skills to deal with issues and problems in the service settings (ILO a, b, c, d, e, h).

Both PolyU's subject lecturers and social workers from the community partner will assess the activity proposals, regarding the appropriateness and feasibility to enhance Mathematics learning.

	<p>The students’ <u>attitude</u> and <u>performance</u> in the rendering of service, their degree of <u>engagement</u> with the service recipients, their <u>collaboration</u> with other students, and <u>interactions</u> with the service recipients and / or collaborating NGOs are obviously indicators of their ability to communicate effectively with clients and stakeholders (ILO d), their sense of civic responsibility, professional ethics and their empathy for people in need (ILO f, g and h), and their ability to work collaboratively to apply their knowledge and skills to deal with real, pressing problems of the community partner(ILO c and e).</p> <p>Students’ performance will be evaluated by the subject lecturers according to their attitude, punctuality and performance in the rendering of service, demonstration of generic skills such as creativity, critical thinking skills, problem-solving skills in planning (ILO e) and preparing of materials, as well as their degree of engagement with the service recipients and their collaboration and interaction with the target group to be served. Subject lecturers will be present while each group is conducting its structured interviews for at least four sessions, where these interviews will be held in the community center of the community partner.</p> <p>Students’ reflective journals and report, and their presentations and discussions during the reflection and review sessions and tutorials, will testify to students’ <u>reflection</u> on their learning experience, the breadth and depth of their learning and demonstration of their ability to handle data in a professional fashion (ILO h). This assesses their ability to link service learning and the academic content of the subject, their ability to apply their knowledge to the service project (ILO b), their empathy for the less fortunate people in the society (ILO f), and their ability to reflect on their role and responsibilities in the society (ILO g).</p>	
<b>Student Study Effort Expected</b>	e-Learning Module	10 Hrs.
	Class contact:	
	<ul style="list-style-type: none"> <li>▪ Discipline-related Lectures, Tutorials, Seminars and / or Workshops</li> </ul>	12 Hrs.
	<ul style="list-style-type: none"> <li>▪ Project-Specific Seminars, Tutorials and / or Workshops</li> </ul>	15 Hrs.
	<ul style="list-style-type: none"> <li>▪ Reflection and review tutorials and sessions</li> </ul>	12 Hrs.
	Other student study effort:	

	<ul style="list-style-type: none"> <li>▪ Readings, self study, and planning and preparation for the service project</li> </ul>	30 Hrs.
	<ul style="list-style-type: none"> <li>▪ Rendering of service</li> </ul>	40 Hrs.
	<ul style="list-style-type: none"> <li>▪ Reflection and review</li> </ul>	19 Hrs.
	Total student study effort	138 Hrs.
<b>Reading List and References</b>	<ol style="list-style-type: none"> <li>1. Cress, C.M., Collier, P.J. &amp; Reitenauer, V.L. (2005). Learning Through Serving: A Student Guidebook for Service-Learning Across the Disciplines. Stylus Publishing</li> <li>2. Adams, M., Blumenfeld, W., Castaneda, C.R., Hackman, H.W., Peters, M.L., Zuniga, X. (Ed.) (2013). Readings for Diversity and Social Justice. Routledge</li> <li>3. Johnson, A. (2018). Privilege, Power, and Difference. McGraw-Hill</li> <li>4. Sen, A. (2011). The Idea of Justice. Belknap Press of Harvard University Press</li> <li>5. Sandel, M.J. (2010). Justice: What's the Right Thing to Do?, Farrar, Straus and Giroux</li> <li>6. Scheaffer et al. (2012). Elementary Survey Sampling. Thomson</li> <li>7. Brace, Ian (2008). Questionnaire Design: How to Plan, Structure and Write Survey Material for Effective Market Research. Market Research in Practice.</li> </ol>	