The Hong Kong Polytechnic University

Subject Description Form

<table>
<tr><td>Subject Code</td><td>APSS6003</td></tr>
<tr><td>Subject Title</td><td>Advanced Quantitative Methods</td></tr>
<tr><td>Credit Value</td><td>3</td></tr>
<tr><td>Level</td><td>6</td></tr>
<tr><td>Pre-requisite / Co-requisite/ Exclusion</td><td>Nil</td></tr>
<tr><td>Assessment Methods</td><td>
<table>
<tr><th>100% Continuous Assessment</th><th>Individual Assessment</th><th>Group Assessment</th></tr>
<tr><td>1. Term Paper/Quiz</td><td>60 %</td><td>-</td></tr>
<tr><td>2. Seminar presentation</td><td>20 %</td><td>-</td></tr>
<tr><td>3. Participation</td><td>20 %</td><td>-</td></tr>
</table>
The followings apply to the overall grade:

The grade is calculated according to the percentage assigned;
The completion and submission of all component assignments are required for passing the subject; and
Student must pass all component(s) if he/she is to pass the subject.

</td></tr>
<tr><td>Objectives</td><td>This subject aims at helping students to develop an advanced understanding of methodological issues in designing and carrying out quantitative research. It will also redress some of the common misconceptions of quantitative research which students may have. It attempts to develop students' ability to appraise major quantitative research methods and select the appropriate statistical analysis methods to address various types of research questions, including the ones which are related to their own research projects.</td></tr>
<tr><td>Intended Learning Outcomes
(Note 1)</td><td>Upon completion of the subject, students will be able to:
a. appreciate better different methodological issues of major quantitative research methods;
b. appraise critically research reports which use quantitative research methods and statistical analyses;
c. position their own research projects and devise different quantitative research designs;
d. assess the appropriateness of different quantitative research methods to answer different research questions;</td></tr>
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<tr><td></td><td>e. develop a research plan for their own projects using quantitative research methods.</td></tr>
<tr><td>Subject Synopsis/ Indicative Syllabus
(Note 2)</td><td>1. Debates on the use of quantitative methods in social science research;
2. Relevance of quantitative research methods in addressing research questions;
3. Issues in designing quantitative research methods -- sample size, sampling methods, response rate, non-response biases, development of instruments for data collection;
4. Proper use of statistical analyses to address research questions and build up arguments;
5. Use common statistical methods -- inferential statistics, factor analysis, difference of means tests, major statistical model building methods.</td></tr>
<tr><td>Teaching/Learning Methodology
(Note 3)</td><td>The course will use case materials as illustrations. Thematic classroom lectures will be delivered and supplemented by workshops and seminars. Students are required to give a seminar to highlight the appropriateness of quantitative methods of their own research projects; or to present their appraisal of a quantitative research related to their own research area. Where necessary, workshops will be arranged to allow them to get familiarize with a range of commonly used statistical analysis methods.</td></tr>
<tr><td>Assessment Methods in Alignment with Intended Learning Outcomes
(Note 4)</td><td>
<table>
<tr><td rowspan="2">Specific assessment methods/tasks</td><td rowspan="2">% weighting</td><td colspan="5">Intended subject learning outcomes to be assessed (Please tick as appropriate)</td></tr>
<tr><td>a</td><td>b</td><td>c</td><td>d</td><td>e</td></tr>
<tr><td>Term Paper/Quiz</td><td>60%</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>Seminar presentation</td><td>20%</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>Participation</td><td>20%</td><td>√</td><td>√</td><td>√</td><td>√</td><td>√</td></tr>
<tr><td>Total</td><td>100 %</td><td colspan="5"></td></tr>
</table>

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

Seminar Presentations and Participation
Students are expected to actively participate in class discussion and give a seminar presentation to demonstrate their appraisal of a major quantitative study related to their research interest.

Term Paper/Quiz
Students are required to submit an individual paper or answer quiz related to research methods.</td></tr>
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Student Study Effort Expected	Class contact:	
	▪ Lecture	27 Hrs.
	▪ Seminar	12 Hrs.
	Other student study effort:	
	▪ Seminar Presentation	30 Hrs.
	▪ Term paper	20 Hrs.
	▪ Self-study	30 Hrs.
	Total student study effort	119 Hrs.
Reading List and References	**Essential**	

Henly, S. J. (2016). *Routledge international handbook of advanced quantitative methods in nursing research*. Abingdon, Oxon ; New York, NY : Routledge.

Kaplan, D. (2014). *The SAGE Handbook of Quantitative Methodology for the Social Sciences*. Thousand Oaks, CA: SAGE Publications.

Matthew, B & Ross, L. (2010). Research methods: A practical guide for the social sciences. New York: Pearson Longman.

Sheppard, M. (2004). *Appraising and Using Social Research in the Human Services: An Introduction for Social Work and Health Professionals.* London: Jessica Kingsley Publishers.

Gordon, R. A. (2012). *Applied Statistics for the Social and Health Sciences.* New York, NY: Routledge.

Rubin, A., & Babbie, E. (2014). *Research methods for social work* (8th Ed.). Belmont, CA: Thomson Brooks/Cole.

Creswell, John (2014). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (4th Ed.). Thousand Oaks, CA: Sage.

Miller, Delbert C. & Salkind, Neil J. (2002). *Handbook of Research Design & Social Measurement*. Sixth Edition. Thousand Oaks, CA: Sage.

Singleton, Royce Jr. and Straits. Bruce (2010). *Approaches to Social Research.* (5th Ed.). New York: Oxford.

Thyer, Bruce (2010). *The handbook of social work research methods*. Los Angeles : SAGE.

Portney, Leslie G. and Mary P. Watkins**.** 2009. F*oundations of clinical research : applications to practice*. Upper Saddle River, N.J. : Pearson/Prentice Hall.

Gallin, John I. and F.P. Ognibene. 2012. *Principles and practice of clinical research*. Oxford : Academic.

Marsden, Peter V. and James D. Wright (eds). 2nd edition. 2010. *Handbook of Survey Research*. Bingley, U.K. : Emerald.

Rosenbaum, Paul R. 2010. *Designs of Observational Studies*. Springer,

New York.
Tabachnick, Barbara G. and Linda S.Fidell. 2013. (5th ed.) *Using Multivariate Statistics*. Boston : Pearson.
Sage University Paper Series : *Quantitative Applications in the Social Science.*

Literature review
Coughian, M. (2013). *Doing a literature review in nursing, health and social care*. Los Angeles: SAGE.
Aveyard, Helen (2007). *Doing a literature review in health and social care : a practical guide*. Maidenhead ; New York : Open University Press
Hart, Chris (1998). *Doing a literature review : releasing the social science research imagination*. London : SAGE.

Statistical analysis
Field, Andy P. 2018. *Discovering statistics using IBM SPSS statistics and sex and drugs and rock 'n' roll.* London : Sage.
Hair, Joseph F. et al. 2010. *Multivariate Data Analysis.* Upper Saddle River, NJ : Prentice Hall/Pearson.
Imbens, Guido W. and Donald B. Rubin. 2015. *Causal Inference for Statistics, Social and Biomedical Sciences : an introduction*. New York : Cambridge University Press.

Meta-analysis
Borenstein, M. et al. (2009). Introduction to meta-analysis. Chichester, U.K. : John Wiley & Sons
Meta-analysis tutorials: https://www.meta-analysis.com/pages/tutorials.php.
Julian, P.T. Higgins and Sally Green (2008). *Cochrane Handbook for Systematic Reviews of Interventions*. Chichester, England ; Hoboken, NJ : Wiley-Blackwell.
Petitti, D.B. (2000). *Meta-analysis, decision analysis, and cost-effectiveness analysis: methods for quantitative synthesis in medicine*. Oxford: Oxford University Press.
Moher, D. et al. (1999). *Improving the quality of reports of meta-analyses of randomised controlled trials: the QUOROM statement*. Lancet.

Instruments
Fischer, J. & Corcoran, K. (2007). *Measures for Clinical Practice and Research: A Sourcebook*. New York : Oxford University Press. (HKU – eBook)
DeVellis, Robert F. (2012). *Scale development: theory and applications*. Thousand Oaks, Calif. : SAGE.

	Evaluative research Becker, S., Bryman, A. & Ferguson, H. (2012). *Understanding research for social policy and social work: Themes, methods and approaches* (2nd ed.). Bristol : Policy Press. Patton, M. Q. (2008). *Utilization-focused evaluation : the new century text* (4th ed.). Thousand Oaks, Calif.: Sage Publications. Patton, M. Q., Patrizi, P., & American Evaluation Association. (2005). *Teaching evaluation using the case method*. San Francisco, Calif.: Jossey-Bass. Patton, M. Q., & Patton, M. Q. (2002). *Qualitative research & evaluation methods* (3 ed.). Thousand Oaks, Calif.: Sage Publications. Shaw, I. (2011). *Evaluating in practice* (2nd ed.). Farnham; Burlington, VT Vt. : Ashgate Pub. Co., Shaw, I. (1999). *Qualitative evaluation*. London: Sage Publications. Shaw, I. (2000). *Evaluating public programmes : contexts and issues*. Aldershot ; Burlington, Vt.: Ashgate. Shaw, I., & Gould, N. (2001). *Qualitative research in social work*. London: SAGE. Shaw, I., Greene, J. C., & Mark, M. M. (2006). *Handbook of evaluation : policies, programs and practices*. London ; Thousand Oaks, Calif.: SAGE.

Note 1: Intended Learning Outcomes

Intended learning outcomes should state what students should be able to do or attain upon completion of the subject. Subject outcomes are expected to contribute to the attainment of the overall programme outcomes.

Note 2: Subject Synopsis/ Indicative Syllabus

The syllabus should adequately address the intended learning outcomes. At the same time over-crowding of the syllabus should be avoided.

Note 3: Teaching/Learning Methodology

This section should include a brief description of the teaching and learning methods to be employed to facilitate learning, and a justification of how the methods are aligned with the intended learning outcomes of the subject.

Note 4: Assessment Method

This section should include the assessment method(s) to be used and its relative weighting, and indicate which of the subject intended learning outcomes that each method purports to assess. It should also provide a brief explanation of the appropriateness of the assessment methods in assessing the intended learning outcomes.