**Hong Kong Baptist University**
**Faculty of Science**
**Department of Mathematics**

**Title (Units): ORBS7110 Quantitative Models for Marketing (3,3,0)**

**Course Aims:** To introduce the foundation concepts of market response models, and discuss techniques and findings spawned by the marketing information revolution. To study a framework for considering the various bases and methods available for conducting segmentation studies, and discuss the methodology for market segmentation from traditional techniques to more recent developments in finite mixtures and latent class models.

**Prerequisite:** No

**Prepared by:** Yau Chin Ko

**Remark:** This course is delivered by staff of HKBU.

**Course Intended Learning Outcomes (CILOs):**

Upon successful completion of this course, students should be able to:

| No. | Course Intended Learning Outcomes (CILOs) |
|-----|-------------------------------------------|
| 1 | Apply response models to forecast market response. |
| 2 | Identify customer segments using quantitative methods. |
| 3 | Apply decision models to make informed decisions. |

**Teaching & Learning Activities (TLAs):**

| CILO | TLAs will include the following: |
|------|----------------------------------|
| 1,2,3 | Lectures with rigorous mathematical discussions and concrete examples. The lecturer will constantly ask questions in class to make sure that the majority of students are following the teaching materials. |
| 1,2,3 | Assignments to monitor both students' learning and mastering of the taught materials. In addition, common mistakes will also be addressed and analyzed. |

**Assessment:**

| No. | Assessment Methods | Weighting | CILO Addressed | Remarks |
|-----|--------------------|-----------|----------------|---------|
| 1 | Assignments | 40% | all | Assignments are designed to measure students' understanding of the theory, techniques, and applications of linear, integer and nonlinear programming problems. Test may be conducted to monitor the students' understanding of the theory, techniques and skills taught in the class. This may involve, but not limited to, in-class discussions of rigorous technical problems and their solutions. |
| 2 | Final Examination | 60% | all | Final Examination is designed to see how far students have achieved their intended learning outcomes especially in the knowledge domain. Students should have a thorough understanding of the knowledge and apply them correctly in different context to do well in the exam. |

**Course Intended Learning Outcomes and Weighting:**

| Content | CILO No. | Teaching (in hours) |
|---|---|---|
| 1. Response Models for Marketing Management | 1 | 12 |
| 2. Choice Models for Marketing Management | 2 | 12 |
| 3. Decision Models for Marketing Management | 3 | 15 |

**References:**

1. Dominique M. Hanssens, Leonard J. Parsons, Randall L. Schultz, *Market Response Models: Econometric and Time Series Analysis,* Springer, 2003.
2. Gary L. Lilien and Arvind Rangaswamy, *Marketing Engineering*, Revised Second Edition, Trafford Publishing, 2004
3. Peter Rossi, Grey Allenby and Robert MuCulloch, *Bayesian Statistics and Marketing*, Wiley, 2005.
4. Michel Wedel, Wagner Antonio Kamakura, *Market Segmentation: Conceptual and Methodological Foundations, International Series in Quantitative Marketing*, Springer, 2000.

**Course Content in Outline:**

| <u>Topic</u> | <u>Hours</u> |
|---|---|

1. Response Models for Marketing Management      12
   A. Marketing Systems
   B. Planning and Forecasting
   C. Static Models
   D. Dynamic Models

2. Choice Models for Marketing Management      12
   A. Regression
   B. Segmentation and Targeting

3. Decision Models for Marketing Management      15
   A. Product Decisions
   B. Advertising and Communication Decisions
   C. Price and Sales Promotion Decisions

*(Approved by the Science Faculty Board Meeting 31 October 2023)*
*(Approved by the Department Management Committee on 5 September 2023)*