

**Humboldt University Berlin**

**Institute of Marketing**

**Prof. Dr. Daniel Klapper**

**Advanced Marketing Modeling**

**Syllabus SS 2019**

### **Course Dates:**

Lectures    Wednesday,    12:15 pm – 13:45 pm,    SPA 1, 22

Exercises    Thursday,    12:15 pm – 13:45 pm,    SPA 1, 22

### **Course Description and Objectives:**

Evaluating marketing decisions and developing goal-oriented marketing strategies, e.g. maximizing firm profits, depend on the measurement of causal relationships between firms' objectives and marketing activities. In this course, we discuss in depth advanced methods to empirically determine the causal relationship between marketing activities and firms' objectives. In exercise courses students learn how to apply these methods to real data. Special attention is given to modeling the effects of marketing on sales and market share data. In this course we also focus on discrete choice models for individual purchase data and aggregate sales data. Successful participation in this class will enable students to quantify the impact of marketing on key performance measures and to evaluate the success of marketing activities.

### **Course Prerequisite:**

Successful participation of Applied Econometrics (Master course) or an equivalent course is strongly recommended.

### **Course Web Page:**

Course material will be made available in the Moodle system of the Humboldt-University Berlin.

### **Course Reference Materials:**

The empirical analyses are done in R. We use a well written textbook that links the computing software R to marketing which is "R for Marketing Research and Analytics" from Chris Chapman and Elea McDonnell Feit (2015, Springer International Publishing). It is recommended to purchase this book.

The following papers and book chapters must be studied in detail:

Berry, S.T. (1994), Estimating Discrete-Choice Models of Product Differentiation, *RAND Journal of Economics*, Vol. 25 (2), 242-262.

Wooldridge, J.M. (2008), *Introductory Econometrics*, South-Western Cengage Learning, Chapters 2, 3 and 4, 68-166.

Chintagunta, P., V. Kadiyali and N. Vilcassim (2004), Structural Models of Competition: A Marketing Strategy Perspective, *Assessing Marketing Strategy Performance*, eds. C. Moorman and D. Lehmann, Cambridge: Marketing Science Institute, 95-113.

Nevo, A. (2000), A Practitioner's Guide to Estimation of Random-Coefficient Logit Models of Demand, in: *Journal of Economics & Management Strategy*, Vol. 9(4), 513-548.

Train, K.E. (2009), *Discrete Choice Methods with Simulation*, Cambridge University Press, Chapter 3, 4, 6, 8, 9, 10.

<https://onlinecourses.science.psu.edu/stat501/node/2>

The following books provide additional background:

1. Anderson, S.P., de Palma A. and Thisse, J.-F. (1992), *Discrete Choice Theory of Product Differentiation*, The MIT Press.
2. Dubin, J. A. (1998), *Studies in Consumer Demand – Econometric Methods Applied to Market Data*, Kluwer Academic Publishers Group.
3. Franses, P.H. and Paap, R. (2010), *Quantitative Models in Marketing Research*, Cambridge University Press.
4. Hanssens, D.M., Parsons, L.J. and Schultz, R.L. (2003), *Market Response Models: Econometric and Time Series Analysis*, Kluwer Academic Publishers Group.
5. Leeflang, P.S.H, Wieringa, J.E., Bijmolt, T.H.A and Pauwels, K.H. (2015), *Modeling Markets – Analyzing Marketing Phenomena and Improving marketing Decision Making*, Springer.
6. Train, K.E. (2009), *Discrete Choice Methods with Simulation*, Cambridge University Press. 1<sup>st</sup> edition is available here: <http://elsa.berkeley.edu/books/train1201.pdf>.
7. Verboven, F. (1996), International Price Discrimination in the European Car Market. *RAND Journal of Economics*, 27(2), 240–268.
8. Wooldridge, J.M. (2008), *Introductory Econometrics*, South-Western Cengage Learning.

## **Other Course Materials:**

All of the topics I will cover have been addressed in the marketing, statistics, and economics literature, both theoretically and in practice. Articles and book chapters relevant to each lecture are named below in the table which shows the sessions and content overview. It is expected that you will have done all of the readings prior to class. If you have questions, bring them to class and I will go over them.

## Course Grading:

Your grade bases on a written assignment of 5 pages about estimating price elasticities and promotion effects on the basis of store-level scanner using the econometric knowledge from this class.

The individual assignment must be send to [daniel.klapper@hu-berlin.de](mailto:daniel.klapper@hu-berlin.de) before August 14, 2019, 9am.

It is also requested that students submit 4 non-graded written special work performances of 5 pages each (excluding graphs and tables). All special work performances must be sent as pdf before a posted deadline to [daniel.klapper@hu-berlin.de](mailto:daniel.klapper@hu-berlin.de). Special work performances can be done in a group of 1-4 students (more details in class). The deadline for submitting the special work performance will be announced in class and via the Moodle system.

For students of the BDPEMS program:

4 Special Work Performances	70%
Final assignment	30%

## Course Software:

The majority of computing in the course will be done with R. This will include in-class demonstrations and a tutorial how to use R.

## Course Topics:

We will cover the following general topics in this course:

- (1) Marketing models and marketing data
- (2) Marketing Analytics with R
- (3) Response models for aggregate data
- (4) Regression analysis for analyzing marketing effects on sales
- (5) Discrete choice models of demand
- (6) Discrete choice models for aggregated data
- (7) Discrete choice models for individual choice data

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CW	Date	L/E	Content and Readings
15	Apr 10	L	Course Logistics and Introduction to the Course 1 Marketing Models and Marketing Data,
15	Apr 11	E	Introduction to R 2 Fundamentals of Data Analysis 2.1 Describing Data

16	Apr 17	L	3 Response Models for Aggregated Data
16	Apr 18	E	Introduction to R 2 Fundamentals of Data Analysis 2.2 Relationships Between Continuous Variables 2.3 Comparing Groups: Tables and Visualizations
17	April 24	L	3 Response Models for Aggregated Data
17	April 25	E	Introduction to R 2.4 Comparing Groups: Statistical Tests
18	May 01		Labour Day
18	May 02	L/E	Introduction into the empirical data sets of this class. Feedback session on Special Work Performance 1
19	May 08		Dies academicus
19	May 09	L	3 Regression Analysis Reviewed
20	May 15	L	4 Regression Analysis Reviewed
20	May 16	E	Exercise On Regression Analysis
21	May 22	L	5 Discrete Choice Models of Demand 5.1 Methodological Background
21	May 23	E	Exercise on Discrete Choice Models of Demand
22	May 29	L	5 Discrete Choice Models of Demand 5.2 Discrete Choice Models for Aggregated Data
22	May 30		Ascension Day
23	Jun 04	L/E	Feedback session on Special Work Performance 2
23	Jun 05	L/E	Feedback session on Special Work Performance 2
24	Jun 12	L	5 Discrete Choice Models of Demand 5.2 Discrete Choice Models for Aggregated Data
24	Jun 13	E	Exercise on Discrete Choice Models for Aggregated Data
25	Jun 19	L/E	Feedback session on Special Work Performance 3
25	Jun 20	L/E	Feedback session on Special Work Performance 3
26	Jun 26	L	5 Discrete Choice Models of Demand 5.3 Discrete Choice Models for Individual Choice Data
26	Jun 27	E	Exercise on Discrete Choice Models for Individual Choice Data
27	Jul 03	L	5 Discrete Choice Models of Demand 5.3 Discrete Choice Models for Individual Choice Data
27	Jul 04	E	Exercise on Discrete Choice Models for Individual Choice Data
28	Jul 10	L/E	Feedback session on Special Work Performance 4
28	Jul 11	L/E	Course wrap up and discussion about final assignment

CW = Calendar week

L = Lecture

E = Exercise