Lecture Team

Lecture: Martin Klarmann

Office hours: Wednesday 10 am – 11 am
(appointment required, please contact Juliane Bayer at juliane.bayer@kit.edu)

Phone: 0721 – 608 4 3726
Email: martin.klarmann@kit.edu
Homepage: http://marketing.iasm.kit.edu/
Address: Zirkel 2, Building 20.21, Room 104

Tutorials: Saskia Jacob & Robin Pade

Office hours: Appointment required

Email: saskia.jacob@kit.edu
Address: Zirkel 2, Building 20.21, Room 103

Office hours: Thursday
(appointment required)

Email: robin.pade@kit.edu
Address: Zirkel 2, Building 20.21, Room 107
Concept

- Time and Place
  - Weekly sessions combining lecture and problem set introduction/general Q&A
  - First session: October 23rd, 2023; Building 10.11/R213
  - Final session: December 21st, 2023; online

- “Learning by doing”
  - Instead of an exam students apply the methods taught in class to real-world datasets
  - Group work

- Implementation:
  - Lecture slides will be provided on ILIAS by chapter
  - Tutorials based on groupwork: Problem sets with applied datasets and R
    - Some short prerecorded R video-tutorials to introduce certain methods
    - Each worksheet will be introduced and discussed
    - For each assignment there is a joint Q&A (classroom) and each group gets a group-specific Q&A (Zoom or offline)
    - No prior knowledge of R required
  - Class is managed through ILIAS, forum actively moderated

- Grade:
  - Up to 25 points for each of the four assignments
  - Final grade determined based on sum of points from the four assignments
  - Peer evaluation in groups to avoid free-riding and to identify superior individual performances
## Detailed Timeline

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>23.10 – 05.11.2023</td>
<td>n/a</td>
<td>Registration for the class (via WiWi-Portal)</td>
</tr>
<tr>
<td>23.10.2023</td>
<td>2 pm</td>
<td>Info session (building 10.11, room 213)</td>
</tr>
<tr>
<td>30.10.2023</td>
<td>2 pm</td>
<td>Lecture chapter 1</td>
</tr>
<tr>
<td>06.11.2023</td>
<td>2 pm</td>
<td>Lecture chapter 1 &amp; Introduction Problem Set 1</td>
</tr>
<tr>
<td>13.11.2023</td>
<td>2 pm</td>
<td>Lecture chapter 2 &amp; Joint Q&amp;A Problem Set 1</td>
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<tr>
<td>15.11.2023</td>
<td>Group-specific</td>
<td>Group-specific Q&amp;A Problem Set 1 (Zoom or offline)</td>
</tr>
<tr>
<td>17.11.2023</td>
<td>5 pm</td>
<td>Deadline submission Problem Set 1</td>
</tr>
<tr>
<td>20.11.2023</td>
<td>2 pm</td>
<td>Lecture chapter 2 &amp; Introduction Problem Set 2</td>
</tr>
<tr>
<td>27.11.2023</td>
<td>2 pm</td>
<td>Lecture chapter 3 &amp; Joint Q&amp;A Problem Set 2</td>
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<tr>
<td>29.11.2023</td>
<td>Group-specific</td>
<td>Group-specific Q&amp;A Problem Set 2 (Zoom)</td>
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<tr>
<td>01.12.2023</td>
<td>5 pm</td>
<td>Deadline submission Problem Set 2</td>
</tr>
<tr>
<td>04.12.2023</td>
<td>2 pm</td>
<td>Lecture chapter 3 &amp; Introduction Problem Set 3</td>
</tr>
<tr>
<td>11.12.2023</td>
<td>2 pm</td>
<td>Lecture chapter 4 &amp; Joint Q&amp;A Problem Set 3</td>
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<tr>
<td>13.12.2023</td>
<td>Group-specific</td>
<td>Group-specific Q&amp;A Problem Set 3 (Zoom or offline)</td>
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<tr>
<td>15.12.2023</td>
<td>5 pm</td>
<td>Deadline submission Problem Set 3</td>
</tr>
<tr>
<td>18.12.2023</td>
<td>2 pm</td>
<td>Lecture chapter 4 &amp; Introduction Problem Set 4</td>
</tr>
<tr>
<td>21.12.2023</td>
<td>11.30 am</td>
<td>Joint Zoom Q&amp;A Problem Set 4</td>
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<tr>
<td>10.01.2024</td>
<td>Group-specific</td>
<td>Group-specific Q&amp;A Problem Set 4 (Zoom or offline)</td>
</tr>
<tr>
<td>12.01.2024</td>
<td>5 pm</td>
<td>Deadline submission Problem Set 4</td>
</tr>
</tbody>
</table>
## Overview problem sets (Preliminary)

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Dataset(s)</th>
<th>Applied Methods</th>
<th>Marketing problem(s)</th>
</tr>
</thead>
</table>
▪ Nonlinear regression  
▪ Regression with interaction effects | ▪ Analyzing demographic and behavioral associations with performance  
▪ Evaluating goals and targets for educational programs |
| Chapter II “Regression Assumptions” | Lifecycle Price and Production (https://www.aeaweb.org/articles?id=10.1257/aer.97.5.1533) | ▪ Instrumental variable regression  
▪ OLS regression  
▪ elasticity | ▪ Shopping intensity  
▪ Price paid for products  
▪ Changes over the course of a customer’s lifetime |
| Chapter III “(Regression) Models for high-dimensional data” | Online reviews for a specific product category (Amazon, WalMart) (provided over ILIAS) | ▪ Text/Lasso regression  
▪ Topic modeling  
▪ Multinomial inverse regression  
▪ Neural network regression  
▪ Generative AI (Transformer Models) | ▪ Customer sentiment analysis  
▪ Product feature importance  
▪ Competitive positioning  
▪ Responding to customer queries |
▪ Vector-Autoregression (VAR) models  
▪ External shock | ▪ Sales for product families  
▪ Impact of promotions  
▪ Influence of holidays, oil price and external shocks (earthquake) |
Registration and groups

- Application time: Monday, October 23, 00:00 am - Sunday, November 05, 11:55 pm.
- You can register either as an individual or as a group of 3-4 individuals via the Wiwi-Portal (https://portal.wiwi.kit.edu/ys/7553 or via QR Code*)
  - Group registrations need to name all group members in the commentary section of each Wiwi-Portal application
  - Group registrations with less than 3 or more than 4 individuals will be treated as individual applications
  - Assignments into groups for individual applications will be based on randomized process
- Required information for registration:
  - The year you successfully took our Market Research exam or a screenshot of your registration for the Market Research exam on 04 November 2023
- Latecomers:
  - If you register after 05 November 2023 you need to work on the first problem set alone
  - You will be assigned into a group for the second problem set onwards
  - The deadline for the first problem set does not change
- Illnesses etc.:
  - If you need to miss out on up to one group work, because you are ill, you can make up the missing points through an individual assignment in January 2024
  - If you miss more than one assignment due to illness, you need to retake the class next year or forego the points from the assignments you missed
- Missing market research requirement:
  - Having passed the exam in Market Research is a prerequisite for this class.
  - Exceptions can be made for exchange students that have passed a similar class at their home university
  - You can still register for the exam on 04 November 2023.
- Peer evaluation:
  - Every participant needs to participate in a peer evaluation with regard to other group members
  - The goal is to avoid free riding
Applications with R

- Throughout this class, all analyses are carried out using R
- Your assignments also need to provide additional text and interpretation as an R notebooks document: https://www.rstudio.com/blog/r-notebooks/
- Reasons behind advocating R:
  - Fast implementation of new techniques through open source approach
  - No licensing issues
  - Standard programming language in the “Analytics World”, e.g.,
    - Google (e.g., https://google-styleguide.googlecode.com/svn/trunk/Rguide.xml)
    - SAP Hana (e.g., http://scn.sap.com/community/developer-center/hana/blog/2012/05/21/when-sap-hana-met-r--first-kiss)
- R can be downloaded at https://www.r-project.org/
- Recommended interface for working with R is RStudio: https://www.rstudio.com/
- We will provide some small introductory videos as a starting point
Helpful Literature


“Marketing analytics“ – defined

- “[T]echnology-enabled and model-supported approach to harness customer and market data to enhance marketing decision making” (Germann, Lilien, and Rangaswamy 2013, p. 114)
- Worldwide google search requests for “Marketing analytics” (indexed)
„Marketing analytics“ – My understanding

- Subdomain of larger field “Market Research”
- Focused on analyses where
  - data is available through other channels (“secondary data”)
  - data is often longitudinal
- Marketing analytics is related to
  - “Big Data”: Application field, but in many cases methods only required “small” data
  - “Customer Analytics”: Customer-level analyses only (http://wcai.wharton.upenn.edu/about-us/)
  - “Data Science”: Larger term, interdisciplinary, covers data exploration and analysis
- Marketing analytics is not “Machine learning,“
  - because it is driven by theory and models
  - it emphasizes learning processes at the individual and organizational level (not learning by a computer)
Some exemplary data sources

Shopping history data
Data from household and store panels
Browsing data

Data from customer databases / CRM systems
Online reviews
Social media communication

Some exemplary data sources

Amazon
Peek & Cloppenburg
Google Analytics

SAP CRM
Nielsen
GröE

salesforce

Online reviews

2.744.393

15.406
18.261

Beim plus.de ein paar Regalmöbel gekauft, eine unterirdische Qualität. Man lernt wirklich #IKEA zu schätzen.

4.9 out of 5 stars

Oracle

Martin Klarmann – Marketing Analytics

Institute of Information Systems and Marketing (IISM)
“Data scientists” highly sought after on current job market
Few degree programs available
Four BWL modules offered by research groups within IISM
All focus on aspects of data science
“Data science” branding by common element in module titles