Rotterdam School of Management
Erasmus University

Advanced Marketing Strategy through Artificial Intelligence and Analytics / Electives / 2025

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Faculty Information

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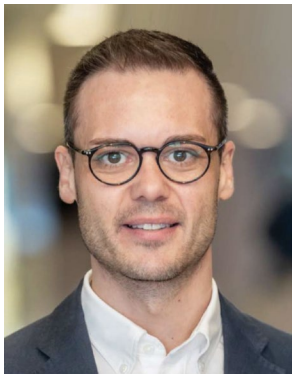
Faculty Bio



Sebastian is Assistant Professor of Marketing at the Rotterdam School of Management, Erasmus University. He serves as Co-director of the Erasmus Centre for Optimization of Digital Experiments (eCODE) and is an expert in the Retail Analytics practice at the Erasmus Centre for Data Analytics (ECDA). In addition to his academic roles, he is a scientific advisor to the Schwarz Media Platform and sits on the advisory boards of several startups in AI and marketing technology.

His professional background bridges academic research and entrepreneurial practice. Before joining RSM in 2022, Sebastian was a serial entrepreneur. He has founded three AI startups that used deep learning to help retailers and marketing solution providers increase their revenue, return on advertising spend, and conversion rates. His start-ups were acquired by global retail, fintech, and consulting companies. His second startup built one of the first retail media network in Europe, later acquired by the Schwarz Group. His advisory work focuses on applying artificial intelligence in marketing, retail media, and digital experimentation, and he maintains active research collaborations with industry partners.

Sebastian's research is located at the intersection of quantitative marketing, machine learning, and econometrics. It centers on deep learning and artificial intelligence in marketing, with publications in leading journals such as *Marketing Science*, *Management Science*, and the Journal of Marketing Research. Sebastian's current projects focus on methodological research in Deep Learning that can be applied to promotion personalization, recommender systems, pricing, and assortment optimization in large-scale retailing settings. His work has received multiple recognitions; he won the ERIM Award for Outstanding Performance by a Young Researcher, was a finalist for the Frank M. Bass Dissertation Paper Award, and received several competitive research grants (e.g., NWO Veni).

The combination of my industry background and my academic research experience allow me to teach how marketing strategy and machine learning can be applied successfully. I hope that my examples

from industry increase the relevance of the course material and make the in-class discussions more practical and fun!

Abstract

As business leaders, strategy consultants, or entrepreneurs, you will face challenging marketing problems daily. Who are your main competitors? Which customers are the right target group for your product? How can you respond to market trends and changing customer needs? How do you engage consumers in your shop and online? And how can websites recommend news and videos to their visitors? The marketing strategies and tactics you will implement can make the difference between success and failure---certainly for your products, and potentially for your entire firm. In tackling these challenges and building successful marketing strategies, many firms rely on big data and marketing analytics. Successful managers must understand how these tools can inform marketing decisions, and they have become a core part of the skill sets of modern marketing professionals.

This course shows you the benefits of using a systematic and analytical approach to marketing decision-making and familiarizes you with the insights and methods needed to understand marketing problems. We discuss critical marketing challenges and introduce various analytics techniques, including cutting-edge approaches such as Deep Learning, Large Language Models, and Generative AI. While the course assumes no prior expertise in machine learning or marketing, we briefly review foundational concepts in both areas to establish a common ground. You will learn how to pick the right solution for tackling analytics opportunities and challenges in today's big data era.

uses an action-oriented, applied approach to managing marketing problems. In addition to showcasing the opportunities created by AI and data analytics, we also explore the organizational and methodological challenges that can limit their success. These include the misalignment between technological solutions and business objectives, algorithmic biases, and privacy concerns. Throughout the course, I will draw on my experience from founding and advising AI-driven companies to link technical topics with real-world decision-making.

We apply the course concepts through four business cases---Amazon, McDonald's, The Gap, and Artea. Each illustrates different facets of AI in marketing: when to use it, how to implement it effectively, and when it may not be the right tool. These cases help bridge theory and practice, encouraging critical thinking about both the potential and the limitations of AI-driven marketing. After completing this course, you will be able to solve marketing analytics problems in a scientific and process-driven manner.

Educational Goals

The course teaches you to solve complex marketing strategy problems with data-driven approaches. After this course, you will be able to:

Learning areas	Educational Goals
I. Content-related	Understand the goals of marketing strategy in data-driven environments.

	Understand the value of big data in marketing strategy.
	Understand the challenges caused by integrating marketing strategy with AI.
II. Skills-related	Pick marketing analytics tools and data sources to develop marketing strategies.
	Develop data-driven marketing strategies in a team.
III. Attitude-related	Reflect on and manage ethical challenges caused by big data in marketing strategy.

Teaching Methods and Workload

I will use different teaching methods in *2* to help you reach these learning goals: Lectures teach the fundamentals of marketing strategy, data, and machine learning. Case studies and breakout groups allow you to apply your knowledge in solving interesting marketing strategy problems. Discussing state-of-the-art methods presented in scientific articles will prepare you to judge the usefulness of machine learning methods and data sets and the way data scientists use them.

In the lectures, I will use many examples from my own work in industry to demonstrate the practical value of the material and to teach important lessons about applying analytics solutions to solve marketing problems. Drawing on experience from AI startups, advisory roles, and research collaborations, I connect theoretical models and algorithms to the decisions firms face every day---from targeting and personalization to campaign optimization and retail media strategy.

This course is structured to reflect the way modern marketing teams actually work: combining analytical rigor with business relevance. You will engage in hands-on problem-solving, assess real-world data, and debate when AI tools are helpful---and when they are not. Each session builds your ability to evaluate, interpret, and communicate data-driven insights that are aligned with strategic objectives.

Two homework assignments provide further opportunities to apply what we learn during lectures and case discussions. These exercises are designed to reinforce technical concepts and offer structured practice with decision-making under uncertainty, often with imperfect or incomplete information---just like in practice. In summary, this course provides generalizable insights and best practices that will help you develop successful marketing strategies, and it offers plenty of opportunities to take what you have learned for a spin.

Description	Calculation	Total
In-Class sessions	6 sessions x 3 hours	18 hours
Class Preparation	18 in-class session hours x 2	36 hours
Team Assignment		15 hours
Individual Assignment		15 hours
Total Course Hours	3 EC x 28	84 Total hours

Grading and Assessment

Advanced Marketing Strategy through Artificial Intelligence and Analytics	Assessment formats			
Educational goals	**Participation**	**Assignment 1**	Assignment 2	**Total**
After following this course, students will be able to:				
– Understand the goals of marketing strategy in data-driven environments.	✔		✔	✔
– Understand the value of big data in marketing strategy.	✔	✔	✔	✔
– Understand the challenges caused by integrating marketing strategy with AI.	✔			✔
– Pick marketing analytics tools and data sources to develop marketing strategies.	✔	✔	✔	✔
– Develop data-driven marketing strategies in a team.	✔	✔		✔
– Reflect on and manage ethical challenges caused by big data in marketing strategy.	✔			✔
Weighting factor	0	50%	50%	100%
Minimum grade required	Pass/Fail	5.5	5.5	5.5
When failed, resit option within academic year (Yes/No)**	No	Yes	Yes	-
Form of examination (e.g. MC, Open-book, etc.)	-	Open-book	Open-book	-
Group / Individual assessment (Group/Individual)	Individual	Group	Individual	-

Grades are rounded according to the rounding provisions included in the Examination Regulations (ER) of the programme, and are expressed with 1 decimal point. Not meeting the minimum grade required for either a component grade or the overall course grade determines a fail for the course. Participants can resit a failed component only once. There is no capping of the grade for a resit examination, unless determined by the faculty. The only exception is when the nature of the failed assignment allows for an improvement effort of the same assignment (capped at 5.5 for that component). A successful resit for all other components results in a capped grade of 5.5 for that component only. Attendance is mandatory and a requirement to pass the course. Missing classes and arriving late may result in grading penalties and even a fail for the course.

Fraud, Plagiarism / Self-plagiarism (Appendix B on Code of Conduct, Examination Regulations -ER-)

The Examination Board defines fraud as "the action or negligence of a student because of which it is

impossible, entirely, or partially, to form a correct judgment about the knowledge, insight, and skills of them or another student" (ER, 2024-2025). Examples of fraud are cheating, cribbing, plagiarism, freeriding in a team assignment, availability of unauthorized (study) material during a test such as mobile phones, contract cheating/outsourcing/ghost-writing, unauthorized use of generative AI, identity fraud, theft.

Confirmed cases of fraud/plagiarism will lead to (appropriate and proportional) sanctions as defined by the Examination Board in the Rules and Guidelines section of the Examination Regulations (ER). Repetitive cases of fraud/plagiarism lead to expulsion from the programme.

Plagiarism is presenting another person's work as one's own. Plagiarism includes any paraphrasing or summarising of the work of another person or group without acknowledgment, including submission of another student's work as one's own. Plagiarism frequently involves a failure to acknowledge the quotation of paragraphs, sentences, or even a few phrases written or spoken by someone else.

Using ideas from your own prior work (assignment) without referencing the work in your assignment is considered self-plagiarism.

Participants are required to adhere to the 6 principles outlined in the RSM AI guidelines with regard to the use of Artificial Intelligence Platforms such as ChatGPT and related software/tools. The unauthorised use constitutes violation of plagiarism/ fraud policy. For this particular course, the faculty promotes an embraced use of AI.

For more information about academic integrity and AI please refer to the Programme's Examination Regulations and RSM AI guidelines documents on the Student Hub. For all Canvas submissions, please make sure to include the student name and programme name in the title of the file submission, as well as within the document itself (on the cover page).

Assessment / Deliverable:	Individual or group:	(Due) date and hand in location:	% of final grade:
Participation	Individual	TBD	20 %
Assignment 1	Group	TBD	40 %
Assignment 2	Individual	TBD	40 %

Required Reading Material (subject to change)

Case: "WeWork: Service Excellence through Business Model Innovation"

This case focuses on WeWork's rapid expansion and its use of data and digital technologies to deliver differentiated customer experiences in the coworking market. The case raises strategic questions around business model innovation, scalability, and customer value creation, while also examining the tension between technology-driven service design and the economics of real estate. It provides a platform to discuss how analytics can support experiential branding and operational efficiency, and where data-driven ambition may exceed practical and financial constraints.

Case: "Amazon Shopper Panel: Paying Customers for Their Data"

This case introduces a new Amazon program that has consumers upload their receipts from

transactions outside of Amazon, in exchange for money. Through the discussion, the case aims to explore issues in customers' privacy in the digital age, the value of customers' own data, and the change in regulations aimed to protect consumers. In addition, the case offers an opportunity to discuss the power dynamics of online giants such as Amazon, Google, and Facebook.

Case: "Predicting Consumer Tastes with Big Data at Gap"

CEO Art Peck was eliminating his creative directors for Gap, Old Navy, and Banana Republic brands, and promoting a collective creative ecosystem fueled by the input of big data. Rather than relying on artistic vision, Peck wanted the company to use the mining of big data obtained from Google Analytics and the company's own sales and customer databases to select next season's assortment. Peck believed that intelligence fueled by big data could outperform a fashion industry creative director at predicting the future fashion trends and tastes of consumers.

Case: "McDonald's: Can A Behemoth Lead in the Era of Artificial Intelligence?"

In March 2017, the American fast food giant McDonald's launched the Velocity Growth Plan. McDonald's wanted to retain its current customers, regain lost customers, and convert casual customers into more committed customers. To help accomplish these objectives, McDonald's introduced delivery and mobile ordering services, and started remodeling its stores. Two years later, McDonald's acquired Dynamic Yield, a digital personalization platform that could be integrated into McDonald's drive-through service, in-store kiosks, and mobile application. Dynamic Yield's software provided McDonald's with the ability to offer customers immediate recommendations, one-to-one messaging, and customer data management. How could McDonald's best use Dynamic Yield to meet its ambitious growth objectives?

Case: "Artea: Algorithmic Targeting and Fairness in Marketing"

This case explores how Artea, a consumer-facing firm with a data-driven culture, seeks to design targeted marketing campaigns using behavioral data from its website. The case unfolds in stages, revealing that algorithmic targeting---while statistically effective---may produce outcomes that disadvantage minority and non-male customers. It highlights the tradeoff between optimization and fairness, and invites discussion on the ethical and strategic implications of algorithmic bias. Students grapple with questions of transparency, regulation, and corporate responsibility in the deployment of AI in marketing.

Supplementary Reading Material

Coming soon

Detailed Course Schedule

Session 1: Coming soon	
Topics:	- Coming soon
Readings:	- Coming soon
Case:	WeWork

Session 2: Coming soon	
Topics:	- Coming soon
Readings:	- Coming soon
Case:	Amazon

Session 3: Coming soon	
Topics:	- Coming soon
Readings:	- Coming soon
Case:	The Gap

Session 4: Coming soon	
Topics:	- Coming soon
Readings:	- Coming soon
Case:	Mc Donald's

Session 5: Coming soon	
Topics:	- Coming soon
Readings:	- Coming soon
Case:	Artea

Session 6: Coming soon	
Topics:	- Coming soon
Readings:	- Coming soon
Case:	–

Assignments Description

In assignment 1, you will create a data profile for a customer persona. The profile describes which data sources the customer persona generates over the course of a week. Based on the data profile, you will then develop business ideas that outline how firms can use the collected data to inform marketing strategy.

In assignment 2, you will apply the lessons learned in this course to design a marketing strategy for a real-world company. You will discuss how big data and machine learning can inform the company's decisions and market positioning. The assignment allows you to critically reflect on the value and the risks of data-driven strategies, similar to our discussions in class.

Course participation will be assessed via information collected during the sessions by the lecturer and/or the TAs, for example, by evaluating your contribution in the lectures or responses to questions ("cold calls"). Additional information may be collected in between sessions to assess your engagement, motivation, and ability to follow the course. Missed classes can negatively impact the participation grade (see Attendance). Please be on time and well-prepared for class, so you can

contribute to the discussion, and make sure to read the assigned material carefully.

The assignments give you an opportunity to apply the theory you learned in the lectures to real-world marketing problems. Use this opportunity to be creative and to have fun :)