

Module Outline

Module Code : MKT4761J
Module Title : AI in Marketing
Semester : Semester 2, AY 2022/2023
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Overview

In recent years, as the quantity of business data has exploded and computing power has continued to improve, opportunities to automate many parts of the marketing function have emerged. In this course, we approach this ever-evolving topic holistically, including identifying the business opportunities and pitfalls AI presents, the legal and ethical considerations associated with the use of AI and a close look at the algorithms that make such automation possible. The course will present business applications, some of the theory behind machine learning and implement examples.

Module Objectives

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

- Provide a high-level overview of where and how AI technology is changing the marketing profession.
- Identify new opportunities in the market place that are likely to benefit from AI technology.
- Anticipate the data requirements for successful implementation of AI technology.
- Explain the core concepts that allow machines to “learn.”
- Cite the key ethical and legal considerations when AI is used with consumer data.
- Implement standard machine learning methods to make predictions.

General Guide & Reading

No required textbook for the course. Suggested readings include:

Prediction Machines (“PM”) by Ajay Agrawal, Joshua Gans, Avi Goldfarb

The AI Marketing Canvas: A Five-Stage Road Map to Implementing Artificial Intelligence in Marketing (“Canvas”) by Rajkumar Venkatesan

Leading with AI and Analytics: Build Your Data Science IQ to Drive Business Value (“AIA”) by Eric Anderson and Florian Zettelmeyer

Data Science for Business (“DSB”) by Foster Provost and Tom Fawcett

Assessment

Assessment Components	Weightage
Class Participation (individual)	10%
Test 1 (individual)	15%
Test 2 (individual)	30%
Problem Sets	20%
Final project presentation (group)	25%

Class Participation: Your contribution to the class, asking questions and participating in class discussions and activities.

Test 1: One-hour test. All questions are multiple-choice. The test is open-book, but no electronic devices are allowed.

Test 2: Full session test covering all material covered to date. Questions will include multiple-choice and short-answer questions. The test is open book, but no electronic devices are allowed.

Final project presentation: Groups of 4-5 members will work together to apply AI methods to one or more data sets. You may imagine that you work for a real or fictitious company and have used the data to produce an analysis that can enhance some aspect of your company’s marketing. The presentation should include both technical details and high-level business implications.

Groups:

You can form your own groups of up to 5 members. These groups will be used for the problem sets and for the final project. Further instructions will be provided in class.

Academic Honesty & Plagiarism

Academic integrity and honesty is essential for the pursuit and acquisition of knowledge. The University and School expect every student to uphold academic integrity & honesty at all times. Academic dishonesty is any misrepresentation with the intent to deceive, or failure to acknowledge the source, or falsification of information, or inaccuracy of statements, or cheating at examinations/tests, or inappropriate use of resources.

Plagiarism is “the practice of taking someone else’s work or ideas and passing them off as one’ own” (The New Oxford Dictionary of English). The University and School will not condone plagiarism. Students should adopt this rule - You have the obligation to make clear to the assessor which is your own work, and which is the work of others. Otherwise, your assessor is entitled to assume that everything being presented for assessment is being presented as entirely your own work. This is a minimum standard. In case of any doubt, you should consult your instructor.

Additional guidance is available at:

- <http://www.nus.edu.sg/registrar/administrative-policies-procedures/acceptance-record#NUSCodeofStudentConduct>
- <http://nus.edu.sg/osa/resources/code-of-student-conduct>

Schedule and Outline

Lesson/ Week	Topic	Reading References	Problem set
1	Introduction, course overview.	PM - Ch 4. Canvas – Ch. 1	
2	How AI predictions add value to your business.	AIA -- Ch. 5 DSB – Ch 7	
3	How to test whether AI predictions will add business value.	DBS—Ch. 5, 8	
4	What makes AI predictions better or worse.	DBS—Ch. 5, 8	
5	Making AI predictions with many variables.	DSB – Ch. 5	Prob set due: Prediction for business question
6	Test 1 / Making AI predictions with many variables.	DSB – Ch. 5	
7	Highly-flexible AI predictions for even more business value.	DBS – Ch. 3	
8	Using experiments to understand which marketing activity works.	AIA Ch. 7	Prob set due: Predictions with many variables
9	Using AI to discover who responds to your marketing activity.		
10	Using AI to improve your advertising copy.		Prob set due: Experiments
11	Survey of advanced AI methods.		
12	Test 2		
13	Group Presentations		