TIMG 5303B Machine Learning for Technology Entrepreneurship Problem-Solving

CRN: 14906 – Winter 2026

Time and Place
Jan 8 – April 2, 2023, Thursdays, 14:35 to 17:25, Nicol Building, Room 4030

Instructor
Stoyan Tanev, Associate Professor, Technology Innovation Management Program, Sprott School of Business; e-mail: stoyan.tanev@carleton.ca

Class sessions & course materials
Access to online course sessions, course materials and recorded videos will be provided through the new CU Brightspace system: https://carleton.ca/brightspace/. To access Brightspace you should use your CU credentials and select the "TIMG5303B ML for Tech Entrepr Probl Solv (SEM) Winter 2026" course. To join a class session, you need to select *Video Conferencing Links / Zoom*. All recorded sessions should be also found there.

Office hours
The instructor can be reached via email and will be available for online meetings by preliminary arranged appointments.

Calendar description
Application of machine learning tools to co-create solutions to entrepreneurial problems, with an emphasis on unstructured text analytics. Topics include machine learning tools, application of topic modeling and text analytics, generation of practical competitive insights for managers, and analysis of publicly available sources including websites. Prerequisite(s): TIMG 5002.

Target audience
The course is designed for graduate students registered in the MABA option of the Technology Innovation Management (TIM) program. Students in other TIM program options and other programs are welcome to attend this course depending on space availability. However, all students should meet the academic standards of the TIM program. For non-TIM students, a preliminary meeting with the professor will be required before admission to the course is granted.

Paul Menton Centre
Students with disabilities requiring academic accommodations in this course are encouraged to contact a coordinator at the Paul Menton Centre (PMC) for Students with Disabilities to complete the necessary letters of accommodation. After registering with PMC, make an appointment to meet and discuss your needs with your instructor at least two weeks prior to requiring accommodation for assignments or presentations. This is necessary to ensure sufficient time to make the necessary arrangements.

Objective

- To enable students to acquire the collaborative skills and business analytics expertise needed to co-create solutions for entrepreneurial problems and generate valuable business insights for companies, and organizations supporting local companies and the TIM program ecosystem.
- To acquire proficiency in:
  - Identifying and collecting relevant publicly available data that could be processed analytically to inform entrepreneurial and innovation management decision-making
  - applying topic modeling and other text mining machine learning techniques to generate competitive insights from various types of textual data relevant to growth-oriented companies and organizations supporting such companies and their business ecosystems
  - adopt large language models (LLMs) and other Generative AI resources to collect, structure, interpret, and analyze valuable data to develop competitive insights.
- To position the TIMG 5303 course as a Living Lab environment for Ottawa-based entrepreneurial companies dealing with growth, innovation, business analytics, and competitive market differentiation.

Student groups

The class will be split into groups of 6-7 students. Each student will work individually and in one of the groups to perform tasks in class, participate in informal group meetings, and contribute to delivering the assignments. Collaboration among group members is part of the group assignments. Leaving and changing groups for any reason will not be tolerated. Once formed, each group should establish a project management structure that will help collaboration between group members and maximize the value of the deliverables. Group members should meet weekly to discuss progress on group assignments and coordinate the next steps in producing the deliverables.

Group work and freeloaders

There will be zero tolerance for freeloaders. By "freeloader" we refer to an individual who takes advantage of team members' efforts without contributing much to group efforts. Group work is an important component of this course. Group conflicts are to be dealt with within the group in a fair, respectful, and timely manner. In case a non-contributing student is excluded from a group, he/she will need to deliver the assignment individually.

Plagiarism

Plagiarism, including copying and handing in for credit someone else's work, is a serious instructional offense that will not be tolerated. Please refer to the section on instructional offenses in the Graduate Calendar for additional information. A case of plagiarism will be referred to the Chair of the Department and the Carleton University Ethics Committee. The instructor will not deal with the matter directly. The University has clear processes for dealing with students who are suspected of plagiarism.

Software requirements

This course requires that each group member install the Orange Data Mining toolkit, available at https://orangedatamining.com/. The course assignments require the additional installation of its text widget (Option -> Add-ons -> Text). The Documentation section on the Orange's website provides some help and tutorials that can be found here: https://orangedatamining.com/docs/. Installing and dealing with any compatibility issues or problems regarding operationality is each student's own responsibility. The instructor does not have resources to help students with their IT problems.

Computer programming skills
Computer programming skills are not required in this course but may be highly useful. Any student, and especially those in the MABA option, interested in becoming proficient in data analytics are highly recommended to develop and advance their programming skills. The course website within Brightspace provides links to books on text analytics using Python machine-learning solutions.

Using ChatGPT, Perplexity AI, Google NotebookLM and other Large Language Model (LLM) resources
Students are encouraged to use ChatGPT, Perplexity AI, and other LLM resources. Every use of such resources should be explicitly mentioned including a clear description of the process, prompts, the LLM-based responses, and how they were used in producing course deliverables. ChatGPT, Perplexity AI, and other LLM resources can be used to:

- Improve the language, flow, and content of their course assignments and reports.
- Align parts of an assignment to enhance its consistency and overall logic.
- Acquire and synthesize information.
- Complement machine learning tasks and analyses.
- Eliminate errors in grammar, spelling, and capitalization as well as citations and references.
- Generate ideas, make recommendations, and extract what is most important.

Students are discouraged from using LLM resources to:

- Provide unedited AI-generated output as a solution to assignments and exam questions.
- Produce content for assignments/exams without double-checking citations and references.

Course assignments

1. ***Assignment # 1 (group assignment, 30%): Comprehensive topic modeling analysis of a corpus of online publications focusing on business, R&D and other news related to emerging quantum technologies.***

Performing topic modeling in combination with preferred Large Language Model (LLM) engines and other relevant text analytics tools on a corpus of text documents focusing on business news, R&D announcements and press releases associated with the development and adoption of emerging quantum technologies. You will need to identify publicly available online sources of business-relevant articles focusing on quantum technologies, design and perform a data collection process that will help you scrape/extract text from the corresponding web pages to build the corpus of text documents, use existing text analytics tools or Python programming to perform a topic modeling analysis, interpret the topic modeling results and enhance your analysis by adopting LLMs or other text analytics tools to develop actionable insights on specific opportunities relevant to technology entrepreneurs and organizations interested in the adoption of emerging quantum technologies.

Assignment 1 consists of two components:

1A. Identifying a publicly available online platform focusing on quantum technology-related business and R&D news. Consider for example *The Quantum Insider*: https://thequantuminsider.com/. An example of a corpus of text documents that would fit the needs of this assignment could be the collection of all online articles published in 2025: https://thequantuminsider.com/2025/. The first step of this component would be to design a data collection process that will scrape/extract the texts of the

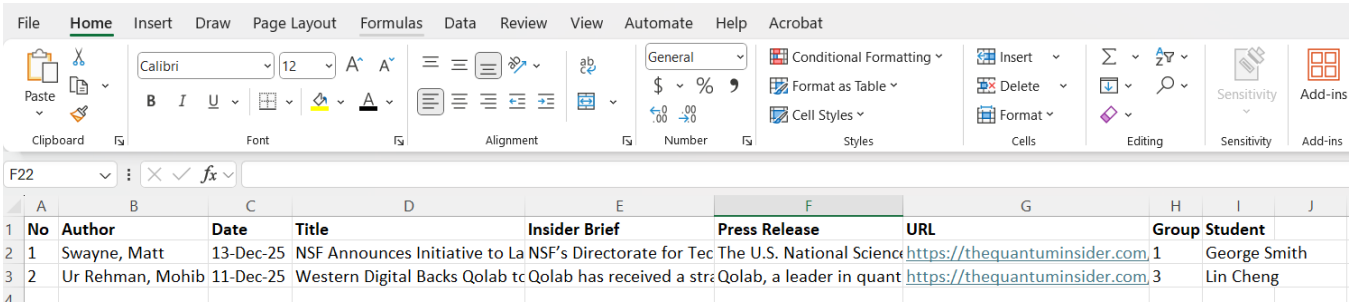
corresponding text documents and save them in an excel sheet that could be used in a topic modeling analysis. Here are two examples of *Quantum Insider* articles published in 2025:

- Swayne, Matt (December 13, 2025). "NSF Announces Initiative to Launch And Scale Transformative Independent Research Organizations National": https://thequantuminsider.com/2025/12/13/nsf-announces-initiative-to-launch-and-scale-transformative-independent-research-organizations/
- Ur Rehman, Mohib (December 11, 2025). "Western Digital Backs Qolab to Advance Quantum Hardware": https://thequantuminsider.com/2025/12/11/qolab-western-digital-investment/

Each article follows the same structure: a) Author Name; b) Publication Date; c) Title; d) URL; e) Insider Brief content; f) Press Release content.

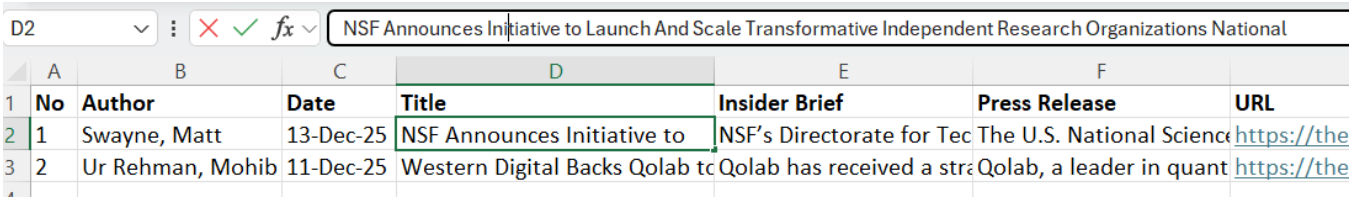
The objective of this component of Assignment 1 is to create an excel sheet that contains all this information for all the articles published in 2025.

There are two ways to approach the text scraping/extraction process. The first one (which is preferable) is to use existing scarping tools and shape an automated process to extract the texts of the articles and saving each one of them in a separate cell of an Excel sheet. The first deliverable of Assignment 1 is the shaping and the description of such process (even though you may end up not using it for the actual building of the corpus of text documents). The second approach would be to extract the texts manually. This second option to build the corpus may become a real choice because of potential difficulties scraping the Quantum Insider webpages. Such process will be definitely longer and may be overwhelming for a single group to do. All groups could however cooperate by splitting the work and produce a joint Excel sheet by using the following format:



	A	B	C	D	E	F	G	H	I	J
1	**No**	**Author**	**Date**	**Title**	**Insider Brief**	**Press Release**	**URL**	**Group**	**Student**	
2	1	Swayne, Matt	13-Dec-25	NSF Announces Initiative to La	NSF's Directorate for Tec	The U.S. National Scienc	https://thequantuminsider.com	1	George Smith	
3	2	Ur Rehman, Mohib	11-Dec-25	Western Digital Backs Qolab to	Qolab has received a stra	Qolab, a leader in quant	https://thequantuminsider.com	3	Lin Cheng	

The benefits of the second text extraction approach would be the possibility to better control the quality of the texts by manually copy pasting each of the Insider Briefs and the Press Releases in two different columns and separate Excel sheet cells. Please note that to make sure that an Insider Brief text (for example) goes into a single cell you can first paste it into the Notepad, to remove the formatting and make all necessary corrections, and then paste the corrected text into the Excell sheet Formula bar.



	A	B	C	D	E	F	
1	**No**	**Author**	**Date**	**Title**	**Insider Brief**	**Press Release**	**URL**
2	1	Swayne, Matt	13-Dec-25	NSF Announces Initiative to	NSF's Directorate for Tec	The U.S. National Science	https://the
3	2	Ur Rehman, Mohib	11-Dec-25	Western Digital Backs Qolab to	Qolab has received a stra	Qolab, a leader in quant	https://the

1B. Use the Orange Data Ming tool to apply topic modeling on the two newly created corpora of text documents considering the Insider Briefs and Press Releases as two separate corpora. The topic modeling analysis should define an appropriate number of topics and examine the stability and the replicability of the topic modeling results. You can also use an LLM engine to process/analyze the most representative text documents associated with each topic to provide a suitable topic interpretation that is both concise, meaningful and actionable. Please follow the discussions in class and the recommendations provided by the instructor on how to approach the delivery of this Assignment.

2. ***Assignment # 2 (group assignment, 30%)****: Create a list of technology-based companies operating in the quantum business domain and use LLM engines and other text analytics tools to characterize the companies in terms of what they offer and the way they use specific technologies to shape their offers.*

Assignment 2 consists of two components:

2A. Select a specific technology-based business domain and create a representative list of companies operating in it. The list should include min 50 companies selected based on a specific criterion, for example – top companies in 2025, best startups to watch in 2026, all the companies that you have found online offering a specific product/service, etc. An example of such list of companies in the quantum domain can be found on the Quantum Insider website: https://thequantuminsider.com/2025/09/23/top-quantum-computing-companies/.

Build an Excel sheet providing the list of companies including: a) the name of the company; b) its url; c) the location of its headquarter; d) year of incorporation; e) its size if possible to find (number of employees); f) a detailed description of the company including the type of business it is in, its key products/services, its key target customers, key differentiation with respect to competitors, etc. These descriptions are important because they could provide a basis for a preliminary categorization of the companies in terms of their market offers. You can use an LLM engine to create such descriptions.

2B. Categorize the companies in terms of the type of business they are in and in terms of what they offer. You can use an LLM engine, provide it with the company urls, and ask it to use the information provided on the company websites to categorize the companies in terms of the type of business they are in and the type of products and services they offer. Identify 3 to 5 companies that could be considered as the most representative exemplars associated with each specific group of companies. What are the insights that you can develop for the companies within each group and across the different groups? Your analysis (within groups and across groups) should suggest ways of developing

insights about some of the key elements of exemplar companies' value propositions: market offer(s), target customers, key benefits of the market offer(s) to target customers, key differentiation of the offer relative to competitive alternatives, key resources provided by the companies to enable value co-creation with customers, role of AI, quantum or other technologies in enhancing customer value, key cost drivers for target customers, etc.

3. ***Assignment # 3 (group assignment, 25%)****: Use your preferred combination of LLM engines to examine the content of the corpus of articles you have created in Assignment 1 (and any other sources you may find relevant) to produce a quantum technology business opportunity landscape.*

Assignment 3 consists of two components:

3A. Examine existing literature to identify an opportunity landscape framework. Two examples of articles discussing the opportunity landscape construct are as follows:

Wang, J., Zhang, Z., Feng, L., Lin, K-Y. Liu, P. (2023). Development of technology opportunity analysis based on technology landscape by extending technology elements with BERT and TRIZ. *Technological Forecasting and Social Change*, 191: 122481. https://doi.org/10.1016/j.techfore.2023.122481

Savioz, P. & Blum, M. (2002). Strategic forecast tool for SMEs: how the opportunity landscape interacts with business strategy to anticipate technological trends. *Technovation*, 22(2): 91-100. https://doi.org/10.1016/S0166-4972(01)00082-7

You should however explore other research or practitioner publications that could provide you with alternative frameworks that could better fit the needs of your assignment.

3B. Use your selected framework to as a guide to design an LLM-based analytical process and apply it to produce a quantum technology business opportunity landscape.

Important note: Please follow the discussions in class and the recommendations provided by the instructor on how to approach the delivery of this assignment.

4. ***Take-home exam (individual assignment, 15%):*** *Will be provided during the last class on April 3*.

Student evaluation and assignment grading
Final grade will be assigned using the following mark allocation:

	Assignment	Deliverable	Date	%
1	Comprehensive topic modeling analysis of a corpus of online publications focusing on business, R&D and other news related to emerging quantum technologies.	1A: See the description of Assignment 1A provided above.	Thursday, Jan 29	10
		1B: See the description of Assignment 1B.	Thursday, Feb 12	20

2	Create a list of technology-based companies operating in the quantum business domain and use LLM engines and other text analytics tools to characterize the companies in terms of what they offer and the way they use specific technologies to shape their offers.	2A: See the description of the Assignment 2A.	Thursday, March 5	10
		2B: See the description of the Assignment 2B.	Thursday, March 19	20
3	Use your preferred combination of LLM engines to examine the content of the corpus of articles you have created in Assignment 1 (and any other sources you may find relevant) to produce a quantum technology business opportunity landscape.	See the description of Assignment 3.	Thursday, April 2	25
4	**Take-home exam**	Will be provided on April 3 at the last class session.	April 23, 2025	15
		Total		100

Class schedule

Session #	Date	Topic	Assigned readings & details
1	Thursday, Jan 8: 14:35-17:35	• Introduction to course objectives • Detailed presentation of Assignments • Introduction to content analysis and planning the text analytics process • Brief introduction to Orange Data Mining tool • Student group formation	• Course outline document • The Fundamentals of Content Analysis, Chs. 2 & 3 in: Anandarajan et al. (2019). *Practical Text Analytics*. • Students install and try out the Orange Data Mining tool: https://orangedatamining.com/
2	Thursday, Jan 15: 14:35-17:35	• Text preprocessing • Familiarization with Orange Data Mining tool • Finalizing student group formation and project assignment	• Text Preprocessing, Ch. 4 in: Anandarajan et al. (2019). *Practical Text Analytics*. • Orange Data Mining tool: https://orangedatamining.com/
3	Thursday, Jan 22: 14:35-17:35	• Term-Document representation • Latent semantic analysis • Q & A about Assignments # 1	• Term-Document Representation, Ch. 5 in: Anandarajan et al. (2019). *Practical Text Analytics*. • Semantic Space Representation and Latent Semantic Analysis, Ch. 6 in: Anandarajan et al. (2019). *Practical Text Analytics*. • Group work on Assignment # 1

4	Thursday, Jan 29: 14:35-17:35	• Student group presentations of progress with Assignment # 1. • Cluster Analysis: Modeling Groups in Text • Q & A about Assignment # 1	• *Delivery of Assignment 1 component 1A* • Cluster Analysis: Modeling Groups in Text, Ch. 7 in: Anandarajan et al. (2019). Practical Text Analytics. • Group work on Assignment # 1
5	Thursday, Feb 5: 14:35-17:35	• Probabilistic Topic Models	• Probabilistic Topic Models, Ch. 8 in: Anandarajan et al. (2019). *Practical Text Analytics*. • Feedback and group work on Assignment # 1
6	Thursday, Feb 12: 14:35-17:35	• Sentiment analysis • Group presentations of Assignment 1B results.	• *Delivery of Assignment 1 component 1B* • Modeling Text Sentiment, Ch. 10 in: Anandarajan et al. (2019). *Practical Text Analytics*.
	Thursday, Feb 19	*Winter break*	
7	Thursday, Feb 26: 14:35-17:35	• Guest speaker • Developing marketing insights from text analysis • Q&A and group work on Assignment 2	• Guest speaker materials • Berger et al. (2022). Marketing insights from text analysis. Marketing Letters, 33, 365–377. • Berger et al. (2020). Uniting the Tribes: Using Text for Marketing Insight. *Journal of Marketing*, 84(1), 1–25. • Group work on Assignment 2
8	Thursday, March 5: 14:35-17:35	• Storytelling Using Text Data • Group work on Assignment # 2	• *Delivery of Assignment 2 component 2A* • Storytelling Using Text Data, Ch. 11 in: Anandarajan et al. (2019). *Practical Text Analytics*. • Group work on Assignment # 2
9	Thursday, March 12: 14:35-17:35	• Visualizing Analysis Results • Group work on Assignment 2	• Visualizing Analysis Results, Ch. 12 in: Anandarajan et al. (2019). *Practical Text Analytics*. • Group work on Assignment 2
10	Thursday, March 19: 14:35-17:35	• Group presentations of Assignment 2 component 2A • Group work focusing on Assignment 3	• *Delivery of Assignment 2 component 2B* • Group work focusing on Assignment 3
11	Thursday, March 26: 14:35-17:35	• Workshop focusing on the delivery of Assignment # 3	• Interactive discussion and group work
12	Thursday, April 2: 14:35-17:35	• Group presentations of Assignment 3	• *Delivery of assignment # 3*

Take home exam is due before midnight on April 23, 2026.

Main textbook

Anandarajan, M., Hill, C. & Nolan, T. (2019). *Practical Text Analytics - Maximizing the Value of Text Data*, Springer.

Recommended books

Albrecht, J., Ramachandran, S., Winkler, C. (2020). Blueprints for Text Analytics Using Python. O'Reilly Media, Inc.

Badhwar, Raj (2021). *The CISO's Next Frontier AI, Post-Quantum Cryptography and Advanced Security Paradigms*. Springer Nature.

Grigorov, Dilyan. (2024). *Introduction to Python and Large Language Models. A Guide to Language Models*. Apress.

Hovy, D. (2020). *Text Analysis in Python for Social Scientists. Discovery and Exploration*. Cambridge University Press.

Isson, J. P. (2018). *Unstructured Data Analytics*, Wiley.

Landauer, T., et al. (2011). *Handbook of Latent Semantic Analysis*, New York: Routledge.

Mizrahi, Gilbert (2023). *Unlocking the Secrets of Prompt Engineering*. Pact publishing.

Recommended articles

- Albalawi, R., Yeap. T., & Benyoucef, M. (2020). Using Topic Modeling Methods for Short-Text Data: A Comparative Analysis. *Frontiers in Artificial Intelligence*, 3(42): 1-14. doi: 10.3389/frai.2020.00042.
- Antons, D., Grünwald, E., Cichy, P., & Salge, T. (2020). The application of text mining methods in innovation research: current state, evolution patterns, and development priorities. R&D Management, 50(3): 329-351.
- Berger, J., Packard, G., Boghrati, R. *et al.* (2022). Marketing insights from text analysis. *Marketing Letters,* 33, 365–377: https://doi.org/10.1007/s11002-022-09635-6.
- Berger, J., Humphreys, A., Ludwig, S., Moe, W. W., Netzer, O., & Schweidel, D. A. (2020). Uniting the Tribes: Using Text for Marketing Insight. *Journal of Marketing*, *84*(1), 1–25: https://doi.org/10.1177/0022242919873106.
- Blei, D. (2012). Probabilistic Topic Models. *Communications of the ACM*, 55 (4): 77–84.
- Brookes, G. & McEnery, T. (2019). The utility of topic modelling for discourse studies: A critical evaluation. *Discourse Studies*, 21(1): 3–21.
- Choi, J., Menon, A., & Tabakovic, H. (2021). Using machine learning to revisit the diversification–performance relationship. *Strategic Management Journal*, 2(9), 1632-1661: https://doi.org/10.1002/smj.3317.
- Davis, I., Keeling, D., Schreier, P., & William, A. (2007). The McKinsey approach to problem solving. *McKinsey Staff Paper* No. 66, July 2007.
- Evangelopoulos, N. (2013). Latent semantic analysis. WIREs Cognitive Science, 4:683–692. doi: 10.1002/wcs.1254.
- Evangelopoulos, N., Zhang, X., & Prybutok, V. (2012). Latent Semantic Analysis: five methodological recommendations. *European Journal of Information Systems*, 21: 70–86.
- Hannigan, T., Haans, R., Vakili, K., Tchalian, H., Glaser, V., Wang, M., Kaplan, S., Jennings, P. (2019). Topic modeling in management research: Rendering new theory from textual data. *Academy of Management Annals*, 13(2): 586–632. https://doi.org/10.5465/annals.2017.0099
- Harel, J. (2009). Things You Should Know (from Linear Algebra).

- Jelodar, H., Wang, Y., Yuan, C. *et al.* (2019). Latent Dirichlet allocation (LDA) and topic modeling: models, applications, a survey. *Multimedia Tools and Applications,* 78, 15169–15211: https://doi.org/10.1007/s11042-018-6894-4.
- Karl, A., Wisnowski, J & Rushing, W.H. (2015). Practical guide to text mining with topic extraction. *WIREs Computational Statistics*, 7:326–340. doi: 10.1002/wics.1361
- Kolomoyets, Y., & Dickinger, A. (2023). Understanding value perceptions and propositions: A machine learning approach. Journal of Business Research, 154, 113355: https://doi.org/10.1016/j.jbusres.2022.113355.
- Landauer, T., Foltz, P. & Laham, D. (1998). An introduction to latent semantic analysis. *Discourse Processes*, 25(2-3): 259-284. DOI: 10.1080/01638539809545028.
- Lu, Q. & Chesbrough, H. (2022). Measuring open innovation practices through topic modelling: Revisiting their impact on firm financial performance. *Technovation*, 114, 102434: https://doi.org/10.1016/j.technovation.2021.102434.
- Maier, D., Waldherr, A., Miltner, P., Wiedemann, G., Niekler, A., Keinert, A., Pfetsch, B., Heyer, G., Reber, U., Häussler, T., Schmid-Petri, H., & S. Adam. (2018). Applying LDA Topic Modeling in Communication Research: Toward a Valid and Reliable Methodology. *Communication Methods and Measures*, 12(2-3): 93-118, DOI: 10.1080/19312458.2018.1430754.
- Miric, M., Jia, N., & Huang, K. (2022). Using supervised machine learning for large-scale classification in management research: The case for identifying artificial intelligence patents. *Strategic Management Journal*, Online Version of Record before inclusion in an issue: https://doi.org/10.1002/smj.3441.
- Reisenbichler, M. & Reutterer, &. (2019). Topic modeling in marketing: recent advances and research opportunities. *Journal of Business Economics*, 89:327–356. https://doi.org/10.1007/s11573-018-0915-7
- Rubia, J. et al. (2024). A Survey about Post Quantum Cryptography Methods. *EAI Endorsed Transactions on Internet of Things*, Volume 10, 2024, 1-9.
- Silge, Julia. (2020). Package 'tidytext': https://github.com/juliasilge/tidytext
- Spradlin, Dwayne (2012). Are You Solving the Right Problem? *HBR*, Sept 2012 issue.
- Thomo, T. Latent Semantic Analysis (Tutorial): https://www.engr.uvic.ca/~seng474/svd.pdf
- Veeckman, C., D. Schuurman, S. Leminen, & M. Westerlund (2013). Linking Living Lab Characteristics and Their Outcomes: Towards a Conceptual Framework. *Technology Innovation Management Review*, 3(12): 6-15. http://timreview.ca/article/748
- Welbers, K., Van Atteveldt, W. & Benoit, K. (2017). Text Analysis in R. *Communication Methods and Measures*, 11(4): 245–265. https://doi.org/10.1080/19312458.2017.1387238
- Wedell-Wedellsborg, T. 2017. Are You Solving the Right Problems? *Harvard Business Review*, January-95(1): 76-83: https://hbr.org/2017/01/are-you-solving-the-right-problems
- Wedell-Wedellsborg, T. 2016. Reframing the problem (video): https://www.facebook.com/HBR/videos/10154597616307787
- Wickham, H. (2014). Tidy Data. *Journal of Statistical Software*, 59(10): 1-23.
- Structural topic modeling: https://towardsdatascience.com/introduction-to-the-structural-topic-model-stm-34ec4bd5383
- Topic Modeling for Real Estate Listing Descriptions: https://www.zillow.com/tech/topic-modeling/

Appendix: ADDITIONAL INFORMATION

Group work

The Sprott School of Business encourages group assignments in the school for several reasons. They provide you with opportunities to develop and enhance interpersonal, communication, leadership, follower-ship and other group skills. Group assignments are also good for learning integrative skills for putting together a complex task. Your professor may assign one or more group tasks/assignments/projects in this course. Before embarking on a specific problem as a group, it is your responsibility to ensure that the problem is meant to be a group assignment and not an individual one.

In accordance with the Carleton University Undergraduate Calendar (p. 34), the letter grades assigned in this course will have the following percentage equivalents:

A+ = 90-100	B+ = 77-79	C+ = 67-69	D+ = 57-59
A = 85-89	B = 73-76	C = 63-66	D = 53-56
A - = 80-84	B - = 70-72	C - = 60-62	D - = 50-52

F = Below 50

Grades entered by Registrar:

WDN = Withdrawn from the course

DEF = Deferred

Academic Regulations

University rules regarding registration, withdrawal, appealing marks, and most anything else you might need to know can be found on the university's website, here:

http://calendar.carleton.ca/undergrad/regulations/academicregulationsoftheuniversity/

Requests for Academic Accommodation

You may need special arrangements to meet your academic obligations during the term. For an accommodation request, the processes are as follows:

Pregnancy obligation

Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf

Religious obligation

Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the Equity Services website: carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf

Academic Accommodations for Students with Disabilities

If you have a documented disability requiring academic accommodations in this course, please contact the Paul Menton Centre for Students with Disabilities (PMC) at 613-520-6608 or pmc@carleton.ca for a formal evaluation or contact your PMC coordinator to send your instructor your Letter of Accommodation at the beginning of the term. You must also contact the PMC no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with your instructor as soon as possible to ensure accommodation arrangements are made. carleton.ca/pmc

Survivors of Sexual Violence

As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and is survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, visit: carleton.ca/sexual-violence-support

Accommodation for Student Activities

Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf

For more information on academic accommodation, please contact the departmental administrator or visit: students.carleton.ca/course-outline

Academic Integrity

Violations of academic integrity are a serious academic offence. Violations of academic integrity – presenting another's ideas, arguments, words or images as your own, using unauthorized material, misrepresentation, fabricating or misrepresenting research data, unauthorized co-operation or collaboration or completing work for another student – weaken the quality of the degree and will not be tolerated. Penalties may include; a grade of Failure on the submitted work and/or course; academic probation; a refusal of permission to continue or to register in a specific degree program; suspension from full-time studies; suspension from all studies at Carleton; expulsion from Carleton, amongst others. Students are expected to familiarize themselves with and follow the Carleton University Student Academic Integrity Policy which is available, along with resources for compliance at: https://carleton.ca/registrar/academic-integrity/.

Sprott Student Services

The Sprott student services office, located in 710 Dunton Tower, offers academic advising, study skills advising, and overall academic success support. If you are having a difficult time with this course or others, or just need some guidance on how to successfully complete your Sprott degree, please drop in any weekday between 8:30am and 4:30pm. Our advisors are happy to discuss grades, course selection,

tutoring, concentrations, and will ensure that you get connected with the resources you need to succeed! http://sprott.carleton.ca/students/undergraduate/learning-support/

Centre for Student Academic Support

The Centre for Student Academic Support (CSAS) is a centralized collection of learning support services designed to help students achieve their goals and improve their learning both inside and outside the classroom. CSAS offers academic assistance with course content, academic writing and skills development. Visit CSAS on the 4th floor of MacOdrum Library or online at: carleton.ca/csas.

Important Information:

- Students must always retain a hard copy of all work that is submitted.

- All final grades are subject to the Dean's approval.

- For us to respond to your emails, we need to see your full name, CU ID, and the email must be written from your valid CARLETON address. Therefore, in order to respond to your inquiries, please send all email from your Carleton CMail account. If you do not have or have yet to activate this account, you may wish to do so by visiting http://carleton.ca/ccs/students/