# ITM 795– Social Media Analytics

**COURSE OUTLINE FOR 2025-2026**

Prerequisite(s): (C)ITM 207 or (C)HTM 402 or (C)MKT 500 or (C)RMG 821 or (C)QMS 442
Antirequisite(s): (C)ITM733

## Instructor Information

- **Instructor Name:** Dr. Anatoliy Gruzd (course coordinator)
- **Office Location:** TRS 2-071
- **Office Hours:** by appointment
- **Phone:** (416) 979 – 5000, ext. 557937
- **Course Website:** my.torontomu.ca (via D2L)
- **Email Address:** gruzd@torontomu.ca

### Email Policy

When contacting the instructor via email, please include “ITM 795:” at the beginning of your subject line.

Students are expected to monitor and retrieve messages and information sent through D2L and TMU email on a frequent and consistent basis. In accordance with the Policy on TMU Student E-mail Accounts (Policy 157), Toronto Metropolitan University (TMU) requires that any electronic communication by students to TMU faculty or staff be sent from their official university email account. Communications sent from other accounts may be disregarded.

## Course Description

This course will help students develop a deeper understanding of social media analytics. Students will be introduced to the types of questions that can be answered using publicly available social media datasets, keeping users’ privacy and research ethics in mind. Students will collect, clean, and analyze data from social media using sentiment and social network analysis techniques. They will also prepare reports demonstrating how project outcomes can support evidence-based, data-driven management practices.

## Course Details

### Teaching Methods

- All lectures will be in person unless otherwise indicated by the instructor.
- Lectures, readings, case study analysis, discussions and hands-on activities are the primary teaching methods in this course.
- Students are expected to have studied the assigned readings and completed any online or written pre-class assignments prior to attending the lectures.
- The lectures will review and expand the textual material, providing students with the professor's commentary and examples.
- The hands-on activities will focus on learning and applying the automated tools and techniques discussed in the assigned readings and during the lectures to individual and group projects. These activities will reinforce the application of various social media analytics techniques.

For the term project, students will work in teams to develop and complete a social media analytics project. The goal of this project is to apply data analytics techniques to analyze social media discourse about a particular event, company, product, or service to:

- Identify main topical themes and sentiments (e.g., what customers are saying),
- Identify key influencers (both individual and organizational accounts), and
- Determine how to use this information to improve the products/services under examination.

### Course Materials

See the "Topics and Course Schedule" section below for a list of assigned articles and online resources. All readings are freely available through the provided links or via TMU's library website.

The course will use the following web-based software:

| Software | Functionality | Availability |
|---|---|---|
| Communalytic https://communalytic.org | Social Media Analytics, Text Analysis, Social Network Analysis and Visualization | EDU-version (free) |

### Course Objectives and Learning Outcomes

Upon completion of the course, it is expected that students will be able to:

1. Discuss and explain how organizations (both public and private) can use social media to achieve their organizational goals and improve organizational performance;
2. Learn how to measure the success (quantitatively and qualitatively) of social media campaigns;
3. Explain and contrast basic concepts and common frameworks used in social media analytics;

4. Identify suitable data sources and evaluate the quality and integrity of social media data;
5. Understand and address technical and ethical issues of using social media data for analytics.
6. Apply different types of data analytics to derive insights from social media data, including methods such as sentiment analysis, geo-based analytics, and social network analysis;
7. Demonstrate competence in analyzing business cases and developing reports for management decision-making with social media data;
8. Develop and implement social media analytics projects and strategies to support business intelligence and evidence-based management;

## Academic Integrity

Academic integrity is integral to your learning, the credibility of your degree or certification, and the integrity of the university as a whole. Senate Policy 60: Academic Integrity defines academic misconduct, provides a non-exhaustive list of examples of behaviours that may be considered as academic misconduct, and explains how academic misconduct concerns are evaluated and decided. The entirety of the policy applies in this course. As well, please note that submitting work created in whole or in part by artificial intelligence tools unless expressly permitted by the Faculty/Contract Lecturer, is considered a violation of Policy 60.

## Generative AI Course Policy, Plagiarism Detection, and Virtual Proctoring

*Generative AI Course Policy and Requirements for Disclosure*

Generative AI tools (e.g., ChatGPT, CoPilot, Grammarly) can provide valuable support in improving research and writing skills, but responsible use is essential to prevent plagiarism and maintain the authenticity of your work. In this course, except for in-class quizzes and midterm (or unless otherwise specified), you may exclusively use such tools to refine and enhance your writing or to assist with data management tasks (e.g., generating a list of suggested keywords for social media data collection or looking up an Excel function to manipulate data tables). However, creating entirely original content, using generative AI for data analysis instead of the course software (Communalytic), or generating references using generative AI tools is prohibited and will be considered a violation of Policy 60: Academic Integrity. Please also note that, according to Policy 60, submitting text, images, or any other academic work that has not been personally created (including AI-generated content) without proper attribution may constitute plagiarism.

If you choose to use a generative AI tool for an assignment in the permitted cases outlined above, clearly explain how you used it in the Acknowledgement section of your submission. You should detail the tool used, its purpose, and how the generated output contributed to your submission. If you are unsure about whether your use is appropriate or how to describe it, consult the instructor before submitting your work. Failing to disclose the use of generative AI tools may be considered a breach of Policy 60. Be aware that generative tools can hallucinate; that is, produce content that seems plausible

but is incorrect, so you must carefully review and interpret the output before deciding how to incorporate it into your work in this course.

*Originality Detection Software*

Turnitin is a plagiarism prevention and detection service to which TMU subscribes. It is a tool to assist instructors in determining the similarity between students' work and the work of other students who have submitted papers to the site (at any university), internet sources, and a wide range of books, journals and other publications. While it does not contain all possible sources, it gives instructors some assurance that students' work is their own. No decisions are made by the service; it generates an "originality report," which instructors must evaluate to judge if something is plagiarized.

Students agree by taking this course that their written work will be subject to submission for textual similarity review to Turnitin. Instructors can opt to have student's papers included in the Turnitin database or not. Use of the Turnitin service is subject to the terms-of-use agreement posted on the Turnitin website. Students who do not want their work submitted to this plagiarism detection service must, by the end of the second week of class, consult with their instructor to make alternate arrangements. Students who choose not to have their papers screened for textual similarity review by Turnitin may be required to submit additional work with their research essay. For example:

- an annotated bibliography of each source used in your paper; and/or
- the first few pages of each cited source used in your paper

Even when an instructor has not indicated that a plagiarism detection service will be used, or when a student has opted out of the plagiarism detection service, if the instructor has reason to suspect that an individual piece of work has been plagiarized, the instructor is permitted to submit that work in a non-identifying way to any plagiarism detection service.

**Copyright**

The course materials provided to you are copyrighted, and may not be shared without my express written permission. Do not share these materials (e.g. course outline, lecture slides, assignment instructions) with others and do not post them on the internet during the course, or at any time after. If you do so, Policy 60 will apply.

**Academic Integrity Resources**

To learn more about Policy 60 and how to avoid academic misconduct, please review and take advantage of these resources:

- Policy 60: Academic Integrity: www.torontomu.ca/senate/policies/academic-integrity-policy-60/
- Academic Integrity Office website: www.torontomu.ca/academicintegrity
- "Academic Integrity in Space" game: https://games.de.torontomu.ca/aio/#/
- "Academic Integrity in Cyberspace!" game: https://www.torontomu.ca/aic/#/
- Student Life and Learning Support: www.torontomu.ca/student-life-and-learning/learning-support

## Topics and Course Schedule (tentative)

| Week | Topic | Readings |
|---|---|---|
| **1** | **Social Media Analytics: Overview**<br>**Ethics of Using Social Media Data** | 1. Internet Research Ethical Guidelines 3.0 - https://aoir.org/reports/ethics3.pdf<br>2. Jacobson, J., Gruzd, A., & Hernández-García, Á. (2020). Social Media Marketing: Who Is Watching the Watchers? *Journal of Retailing and Consumer Services*, *53*, 101774. https://doi.org/10.1016/j.jretconser.2019.03.001<br>3. Does Research Using Social Media Platforms Require Research Ethics Board Review? Guidance in Applying TCPS 2 (2022)- https://ethics.gc.ca/eng/reb-cer_social-sociaux.html |
| **2** | **Data Structure, Collection and APIs (Application Program Interface)** | 4. Hands-on resources on data collection from different platforms using Communalytic:<br>▪ **Reddit** - Recent Submissions<br>▪ **YouTube** - Video Comments<br>▪ **Bluesky** - Keyword-based Search<br>▪ **Mastodon** - Hashtag-based Search |
| **3** | **Topic Analysis** | 5. Understanding Word/Sentence Embeddings (also see here)<br>6. Understanding UMAP (Uniform Manifold Approximation and Projection)<br>7. How HDBSCAN Works (also see here)<br>8. Hands-on: How-to Use the Topic Analyzer in Communalytic<br>9. Hands-on: Adjusting Clustering Parameters based on the Davies-Bouldin Index (DBI) |
| **4** | **Civility Analysis (Toxicity vs Pro-social Scores)** | 10. Morales, E., Hodson, J., O'Meara, V., Gruzd, A., & Mai, P. (2025). Online toxic speech as positioning acts: Hate as discursive mechanisms for othering and belonging. *New Media & Society*, 14614448251338493. https://journals.sagepub.com/doi/full/10.1177/14614448251338493<br>11. Gruzd, A., Mai, P., & Taleb, O. (2024). Digital battleground: An examination of anti-refugee discourse on Twitter against Ukrainians displaced by Russia's invasion of Ukraine. *First Monday*. https://doi.org/10.5210/fm.v29i8.13734<br>12. Hands-on: How-to Use Communalytic Civility Analyzer<br>13. Hands-on: Civility(Toxicity) Analysis + Topic Analysis with Chapman's Ice Cream COVID19 Dataset |

| Week | Topic | Readings |
|---|---|---|
| **5** | **Sentiment Analysis** | 14. Garay, J., Yap, R., & Sabellano, M. J. (2019). An analysis on the insights of the anti-vaccine movement from social media posts using k-means clustering algorithm and VADER sentiment analyzer. In *IOP Conference Series: Materials Science and Engineering* (Vol. 482, p. 012043). https://iopscience.iop.org/article/10.1088/1757-899X/482/1/012043/meta<br><br>15. Botchway, R. K., Jibril, A. B., Kwarteng, M. A., Chovancova, M., & Oplatková, Z. K. (2019, September). A review of social media posts from UniCredit bank in Europe: a sentiment analysis approach. In *Proceedings of the 3rd International Conference on Business and Information Management* (pp. 74-79). https://dl-acm-org.ezproxy.lib.torontomu.ca/doi/pdf/10.1145/3361785.3361814<br><br>16. Hands-on resource: Sentiment Analysis in Communalytic |
| **6** | **READING WEEK** | **NO CLASS** |
| **7** | **Social Network Analysis** | 17. Grandjean, M. (2021). Introduction to social network analysis: basics and historical specificities. In *HNR+ ResHist Conference 2021*. https://dx.doi.org/10.5281/zenodo.5083036<br><br>18. Hands-on: Network Visualization in Communalytic<br><br>19. Hands-on: How-to use Polarity Scores in Network Visualization |
| **8** | **Social Network Analysis (Part 2)** | 20. Gruzd, A., & Mai, P. (2020). Going viral: How a single tweet spawned a COVID-19 conspiracy theory on Twitter. Big Data & Society, 7(2). https://doi.org/10.1177/2053951720938405<br><br>21. Gruzd, A., Ghenai, A., & Mai, P. (2024). How COVID-19 Conspiracy Theories Spread on Twitter. HICSS. https://hdl.handle.net/10125/106682<br><br>22. Gruzd, A., Mai, P., & Soares, F. B. (2022). How coordinated link sharing behavior and partisans' narrative framing fan the spread of COVID-19 misinformation and conspiracy theories. *Social Network Analysis and Mining*, *12*(1), 118. https://link.springer.com/article/10.1007/s13278-022-00948-y |

| Week | Topic | Readings |
|---|---|---|
| **9** | **Social Media Platforms, Users and Communities** | 23. Gruzd & Mai (2025). The State of Social Media in Canada 2025. Social Media Lab Toronto Metropolitan University. https://doi.org/10.6084/m9.figshare.28830188<br><br>24. Mai, Saiphoo, Soares & Gruzd (2022). The Influence of Influencers. Social Media Lab Toronto Metropolitan University. https://doi.org/10.6084/m9.figshare.21586947 |
| **10** | **Social Media Platforms and Misinformation** | 25. Misinformation, Disinformation and Mal-Information \| eReader (mediadefence.org)<br><br>26. Soares, F. B., Gruzd, A., & Mai, P. (2023). Falling for Russian Propaganda: Understanding the Factors that Contribute to Belief in Pro-Kremlin Disinformation on Social Media. Social Media + Society, 9(4). https://doi.org/10.1177/20563051231220330<br><br>27. Gruzd, A., Abul-Fottouh, D., Song, M. Y., & Saiphoo, A. (2023). From Facebook to YouTube: The Potential Exposure to COVID-19 Anti-Vaccine Videos on Social Media. Social media+ society, 9(1). https://doi.org/10.1177/20563051221150403<br><br>28. Tufchi, S., Yadav, A., & Ahmed, T. (2023). A comprehensive survey of multimodal fake news detection techniques: Advances, challenges, and opportunities. International Journal of Multimedia Information Retrieval, 12(2), 28. https://doi.org/10.1007/s13735-023-00296-3 |
| **11** | **Fake Accounts, Social Bots and DeepFakes** | 29. Shao, C., Ciampaglia, G. L., Varol, O., Yang, K.-C., Flammini, A., & Menczer, F. (2018). The spread of low-credibility content by social bots. Nature Communications, 9(1), Article 1. https://doi.org/10.1038/s41467-018-06930-7<br><br>30. Cao, Y., Li, S., Liu, Y., Yan, Z., Dai, Y., Yu, P. S., & Sun, L. (2023). A Comprehensive Survey of AI-Generated Content (AIGC): A History of Generative AI from GAN to ChatGPT. arXiv. http://arxiv.org/abs/2303.04226<br><br>31. Meta's threat disruptions reports - https://transparency.meta.com/en-gb/metasecurity/threat-reporting<br><br>32. EU's DSA Transparency Database - https://transparency.dsa.ec.europa.eu/?lang=en |

| Week | Topic | Readings |
|---|---|---|
| **12** | **Big Data Technologies** | 33. Gruzd, A., Zhang, J., & Mai, P. (2025). GraphOptima: A graph layout optimization framework for visualizing large networks. *SoftwareX*, *29*, 102034. https://doi.org/10.1016/j.softx.2025.102034<br><br>34. Gruzd, A., De Domenico, M., Sacco, P. L., & Briand, S. (2021). Studying the COVID-19 infodemic at scale. *Big Data & Society*, *8*(1), 20539517211021115. https://journals.sagepub.com/doi/full/10.1177/20539517211021115 |
| **13** | **Work-In-Progress Group Presentations** | N/A |

## Evaluation, Assessment and Feedback

The grade for this course is composed of the mark received for each of the following components:

| | Evaluation Component | Percentage of Final Grade | Due Date |
|---|---|---|---|
| Individual | In-Class Participation (5 out of 7 in-class participation quizzes x 4%) | 20% | Weekly |
| | Midterm | 40% | See D2L |
| Group | Group Project: Social media campaign analytics | 40% | See D2L |
| | Final Grade | 100% | |

**Note:** Students must achieve a course grade of at least 50% to pass this course.

At least 20% of student's grade based on individual work will be returned to students before the last date to drop a course in good academic standing.

**Late submissions:** Your assignments must be submitted via D2L by the deadline specified on D2L (11:59 pm on the due day); otherwise. the submission will be deemed late, and a penalty of 10% per day late will be applied. Assignments over three (3) calendar days late will not be accepted, and a grade of zero (0) will be assigned.

If you anticipate submitting late due to a health or family emergency, please contact the Academic Accommodation Support office to request formal accommodation. Unfortunately, the instructor cannot grant an extension on an individual basis without the University's approval.

## University Policies

You are reminded that you are required to adhere to all relevant university policies found in their online course shell in D2L and/or on the Senate website.

## Important Resources Available at Toronto Metropolitan University

- The University Libraries provide research workshops and individual consultation appointments. There is a drop-in Research Help desk on the second floor of the library, and students can use the Library's virtual research help service to speak with a librarian, or book an appointment to meet in person or online.
- Student Life and Learning Support offers group-based and individual help with writing, math, study skills, and transition support, as well as resources and checklists to support students as online learners.
- You can submit an Academic Consideration Request when an extenuating circumstance has occurred that has significantly impacted your ability to fulfill an academic requirement. You may always visit the Senate website and select the blue radio button on the top right hand side entitled: Academic Consideration Request (ACR) to submit this request.

  For Extenuating Circumstances, Policy 167: Academic Consideration allows for a once per semester ACR request without supporting documentation if the absence is less than 3 days in duration and is not for a final exam/final assessment. Absences more than 3 days in duration and those that involve a final exam/final assessment, always require documentation. Students must notify their instructor once a request for academic consideration is submitted. See Senate Policy 167: Academic Consideration.
- Longer absences are not addressed through Policy 167 and should be discussed with your Chair/Director/Program to be advised on next steps.
- If taking a remote course, familiarize yourself with the tools you will need to use for remote learning. The Remote Learning Guide for students includes guides to completing quizzes or exams in D2L Brightspace, with or without Respondus LockDown Browser and Monitor, using D2L Brightspace, joining online meetings or lectures, and collaborating with the Google Suite.
- Information on Copyright for Faculty and students.
- Information on Academic Integrity for Faculty and students.

## Accessibility

- At Toronto Metropolitan University, we are committed to ensuring that all courses are accessible to everyone and to removing barriers that may prevent some individuals from enrolling in courses.
- All technologies and tools used in this course are accessible.
- Students who discover an accessibility barrier with any of the course materials or technologies should contact their instructor.
- As outlined in Policy 159: Academic Accommodation of Students with Disabilities, students are required to proactively consult with AAS, the instructor, Department or Faculty, as soon as feasible, including prior to enrolling in a course or program,

on any concerns they may have about their ability to meet the essential academic requirements of a course/program.

### Academic Accommodation Support

Academic Accommodation Support (AAS) is the university's disability services office. AAS works directly with incoming and returning students looking for help with their academic accommodations. AAS works with any student who requires academic accommodation regardless of program or course load.

- Learn more about Academic Accommodation Support.
- Learn how to register with AAS.
- Learn about Policy 159: Academic Accommodation of Students with Disabilities

Academic Accommodations (for students with disabilities) and Academic Consideration (for students faced with extenuating circumstances that can include short-term health issues) are governed by two different university policies. Learn more about Academic Accommodations versus Academic Consideration and how to access each.

## Wellbeing Support

At Toronto Metropolitan University, we recognize that things can come up throughout the term that may interfere with a student's ability to succeed in their coursework. These circumstances are outside of one's control and can have a serious impact on physical and mental well-being. Seeking help can be a challenge, especially in those times of crisis.

If you are experiencing a mental health crisis, please call 911 and go to the nearest hospital emergency room. You can also access these outside resources at anytime:

- Distress Line: 24/7 line for if you are in crisis, feeling suicidal or in need of emotional support (phone: 416–408–4357)
- Good2Talk: 24/7-hour line for postsecondary students (phone: 1-866-925-5454)
- Keep.meSAFE: 24/7 access to confidential support through counsellors via My SSP app or 1-844-451-9700

If non-crisis support is needed, you can access these campus resources:

- Centre for Student Development and Counselling: 416-979-5195 or email csdc@torontomu.ca
- Consent Comes First – Office of Sexual Violence Support and Education: 416-919-5000 ext 3596 or email osvse@torontomu.ca
- Medical Centre: call (416) 979-5070 to book an appointment

We encourage all Toronto Metropolitan University community members to access available resources to ensure support is reachable. You can find more resources available through the Toronto Metropolitan University Mental Health and Wellbeing website.