

# Technical Communications



# TECHNICAL COMMUNICATIONS

MICHAEL THOMPSON; MAIKEL RHEINSTADTER; FRANTISEK FRANEK; MICHAEL TWOHEY; JARED KUNAR; AMY MCINTOSH; AND ISABELLA PASSOS-GASTALDO

BHARTI SCHOOL OF ENGINEERING, LAURENTIAN UNIVERSITY;  
FACULTY OF ENGINEERING AND APPLIED SCIENCE, QUEEN'S  
UNIVERSITY; LASSONDE SCHOOL OF ENGINEERING, YORK  
UNIVERSITY; FACULTY OF ENGINEERING AND ARCHITECTURAL  
SCIENCE, RYERSON UNIVERSITY; FACULTY OF ENGINEERING,  
UNIVERSITY OF OTTAWA; FACULTY OF ENGINEERING, WESTERN  
UNIVERSITY; AND FACULTY OF ENGINEERING AND DESIGN,  
CARLETON UNIVERSITY



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# INTRODUCTION

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Welcome to “Technical Communications for Graduate Students”. This is a digital course on the technical communications intended for graduate studies in STEM and other disciplines. This course will familiarize you with concepts related to writing, preparing presentations and oral delivery to peer-specific and general audiences. The beginning of the course will familiarize you with skills and practices applied to the academic setting, and finally transition to the requirements in a business context.



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*This project is made possible with funding by the Government of Ontario and through eCampusOntario’s support of the Virtual Learning Strategy. To learn more about the Virtual Learning Strategy visit: <https://vls.ecampusontario.ca>.*

# ACCESSIBILITY STATEMENT

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*Technical Communications* was developed with the intent to be an open and accessible educational resource to be inclusive and barrier-free for all learners. It was developed under the applied accessibility standards of WCAG 2. AA.

## Pressbooks:

This resource has been published using Pressbooks which provides inclusive design in their textbook templates as well as a variety of exportable formats. All text –based features in this resource use headers, accessible fonts, sizing and contrasting colours. Formats of this resource are available for people who use screen-reader technology. In addition to this Pressbooks web version of Technical Communications, this resource is available in:

- PDF (for print)
- PDF (for digital distribution)
- EPUB 2.01
- EPUB 3
- XHTML
- HTML Book
- OpenDocument
- WordPress XML
- Pressbooks XML

## Video:

Each section of this resource includes a video lecture. All speech content and relevant non-speech content in each video has been captioned. This means that video subtitles representing all audio that is synchronized with video content are available to turn on and off in the right-corner of the video player (CC symbol). There are video transcripts of each lecture linked in a PDF file below each video player.



## Assessments:

Assessments have been developed for each section using H5P modules. H5P aims to meet WCAG 2.0 standards with their software. This course uses multiple choice questions, true or false and text-based exercises as a means of assessment.

## Questions About Accessibility:

If you have any questions or issues concerning the accessibility of Technical Communications, please reach out to eCampus Ontario ([inquiry@ecampusontario.ca](mailto:inquiry@ecampusontario.ca)) to request contact information for this resource.



1.

# THE ART AND SCIENCE OF PERSUASION

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## Maintaining Trust, Respect, and Integrity

This is a post-graduate level course covering the topics of effective communications for researchers from any discipline across campus. This module introduces key elements to communicating, that other modules will apply to different modes of delivery. As researchers, we must be careful to convey our thoughts in a clear manner, so that they can not be misinterpreted by our audience.

### Learning Objectives:

- Identify different groups or individuals that make up an audience and their diverse levels of interest and background knowledge on a topic
- Define the purpose of your message to build emotional investment in the topic
- Create structure by providing a logical flow and a clear message
- Apply context, making the topic relatable to the audience through recognizable events and familiar values
- Cover additional topics on paragraphs, tenses, abbreviations and choosing your voice

This is not a spelling or grammar course, but *some* resources will be found at the end of this module.

### Part One: Video Lecture



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### **Part One: Video Lecture Transcript**

### Part One: Quiz



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## Common Ideas To Keep In Mind

The previous discussion covered the universal elements in communicating that the subsequent modules will put into context for different settings. Subsequent discussions will cover general communication tips for researchers to keep in mind, regardless whether writing or presenting. These tips include:

- Terminology
- Quantification versus qualification
- Verb tense
- Abbreviations
- Expressing numbers
- Passive versus active voice

## Part Two: Video Lecture



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### **Part Two: Video Lecture Transcript**

## Part Two: Quiz



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## Recommended Exercise

### **Before advancing to the next module, try the following exercise.**

Select two journal articles useful for your research and rank which one was more understandable to read. Then, going paragraph by paragraph through each article, highlight what is its introduction, discussion, and conclusion. Was the article previously chosen as easier to read more consistent with providing an introduction, discussion, and conclusion? Was it easier read because the length of the introduction, discussion and conclusion was shorter in each paragraph? Did the conclusion of one paragraph link to the introduction of the next paragraph? This analysis will help you in preparing to write your own article.

2.

# AUDIENCE ANALYSIS

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## Learning Objectives

- Understand the purpose of audience analysis as an effective communication tool for crafting or adapting a message based on a common ground shared with the audience
- Recognize the importance of understanding the socio-demographic makeup of an audience to determine their knowledge of a topic
- Recognize the importance of understanding the psychographic makeup of an audience to identify their needs
- Identify the factors that can influence attention span when communicating a message

## Video Lecture:



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## Video Lecture Transcript

## Quiz:



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## Recommended Exercise:

### **Before advancing to the next module, try the following exercise.**

Based on your current research studies, identify five publications to which you might want to submit your findings. Generate a table listing the socio-demographics and the psychographics of the desired audience for each publication. Socio-demographic factors that may affect the receptiveness of that publication's audience to your message include their age, race, creed, language, education, knowledge/ expertise, interests, and social groups. Psychographics refers to the psychological motivations of the audience, like their attitudes, beliefs, emotions, opinions, and lifestyle. Depending on your discipline, only some factors under each category will be possible to determine from the websites of these publications. Once the table is complete, select the ideal publication for your findings and clearly explain why.

3.

## WRITING FOR PUBLICATIONS

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### Learning Objectives:

- Develop a literature review by presenting significant content, identifying the challenges in your area of study, recognizing disputed thinking, and identifying gaps.
- Convey the significance of your work including what it is, why it should be undertaken, and how it will be carried out
- Recognize and apply different genre and disciplinary writing conventions (when to use past and present tense or active and passive voice)
- Prepare a publication using writing guidance for the major disciplines
- Compose a cover letter to an editor and identify how to respond to a reviewer's comments.

### Part One – Video Lecture:



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Part One – Video Lecture – Video Transcript

### Quiz One:



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## Recommended Exercise:

**Before advancing to Part 2, try the following exercises.**

1. Pick one of your favourite research papers from the literature. Using “Google Scholar” and “Connected Papers” identify this paper as landmark paper, paper specific to your sub-field, or closely related to what you do.
2. Using that same paper, find the most highly cited paper,
  - which is used as a reference.
  - which is more recent and cites this paper.

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## Part Two – Video Lecture:



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### **Part Two – Video Lecture Transcript**

## Quiz Two:



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## Part Two – Recommended Exercise:

### **Before advancing to the next module, try the following exercise.**

A lot of Masters and Ph.D. thesis at your university are now online and accessible to wider audience. Please, chose a and download a couple of theses, a Masters and a Ph.D. thesis, preferably from your field of interest/research and try critique the thesis using the criteria presented in the module. In particular, focus on the argument given for the purpose of the research/study of the thesis. A trivial purpose of a thesis is always clear – to fulfill the requirement of the graduate programme. But you should critique if the thesis presents a good case for the research/study. Is it convincing – play a devil’s advocate and try finding arguments why not to do it and see how well the thesis’ arguments for doing so hold up. If the thesis contain numeric or quantitative data, see whether they are presented in a way that informs you. The same for graphs/diagrams if there are any. Then critique the Conclusion and try determine if it is a true Conclusion or more of a Summary.

4.

# PROPOSING AND REPORTING A PROJECT

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## Learning Objectives

- Establish and convey the main ideas of your proposed work, and invoke interest and engagement in the reader.
- Identify and present convincing arguments for the undertaking of the project, as well as methodologies.
- Identify, analyze and review the literature that concerns the arguments for your proposed project by illustrating a wide interest in the topic.
- Identify and emphasize relevant and new methods that indicate a good foundation for your project as well as the novelty of your methods.
- Develop impactful presentations of your results, evidence, or conclusions for easy comprehension by the reader.
- Evaluate findings (your results, data, or conclusions) and provide support references for the validation.
- Develop conclusions that briefly and succinctly summarize the project and its findings.

## Video Lecture:



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## Video Transcript

## Quiz





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## Recommended Exercise:

### **Before advancing to the next module, try the following exercise.**

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5.

# PRESENTATIONS AND VISUALIZING DATA

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## Learning Objectives

- Identify best practices for creating a research poster with visual impact, clarity and ease of navigation
- Prepare effective figures for both presentations and papers

## Part One – Video Lecture:



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### **Part One – Video Lecture Transcript**

## Part Two – Video Lecture



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### **Part Two – Video Lecture Transcript**

## Quiz



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6.

## HOW TO GIVE AN ORAL PRESENTATION

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This is a post-graduate level course covering the topics of effective personal presentation for researchers from any discipline across campus. This module introduces key elements of communicating in person, the topics and results of your scholarly work. Presentations must be careful to convey the research in a clear and unambiguous manner so that it cannot be misinterpreted by the audience while “getting the message across”.

### Learning Objectives:

- Audience – determining the level of abstraction/level of technicality for the given audience.
- Purpose – the message – what should be the main ideas/concepts the audience should carry away from the presentation.
- Structure of the presentation.
- Context – in what context the presentation is made – standard presentation, keynote presentation, plenary presentation, determining the choice of voice.

### Video Lecture



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### Video Transcript

### Quiz





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## Recommended Exercise:

### **Before advancing to the next module, try the following exercise.**

Choose a relatively small topic in your field of interest/research. Prepare a few slides to present the topic. The slides are not to be too busy, meaning not to curvy complex information in textual or graphical form. Then time yourself how much time it takes you to read silently your slide and comprehend what the text or the diagrams or the tables mean. It is hard to pretend to see it for the first time as you prepared the slides, but try nevertheless.

If it takes more than a minute to do so, the slide contains too much information. Try trimming the slides down to accommodate this time limit. Then make the presentation, i.e. speak about the topic based on the slides. Try two levels of abstraction, i.e. how detailed your talk is. In the low level of abstraction (suitable to non-expert audience), you should not talk more that 2 minutes per slide and to elaborate many details from the slides. In the higher level of abstraction (suitable to expert audience), you should be able to elaborate more on the information of the slides. The talking about the information on each slide should take you approximately 2-4 minutes. If you have good friends willing to sacrifice, repeat this with your friends being your audience.

**Note:** There are many presentations to be found on the Internet, but most are bad as either the speaker is just showing off, or they are business pitches or plain propaganda bordering on disinformation. If you want to follow an oral presentation on the Internet, use the criteria from this module to determine if the presentation is good enough for you to emulate.