**St. Jerome's University in the University of Waterloo**
Department of English
English 119 (041) **Winter 2021**
Communications in Mathematics and Computer Science
Online. Lectures to be uploaded Tuesdays, with other communications by e-mail.

**Instructor:** Mark Spielmacher msspielm@uwaterloo.ca

My office in Sweeney Hall is inaccessible due to COVID-19. I will hold regular "office hours" by frequently checking my e-mails throughout the day on Tuesdays and Thursdays.

**Course Description:** Far from being "human calculators," mathematics students often find themselves in situations requiring strong communication skills: for example, they need to explain their ideas to their peers and colleagues, they need to explain technical concepts to those who do not share their technical background, and they need to reassure managers about their projects' progress. Many sources emphasize the need for communication in technical fields:

> In one CAS survey, "the top non-quantitative skill was communication. Other key non-quantitative skills were project management, business knowledge, networking, leadership, and industry knowledge. . . . 'You have to make a conscious effort at it," said [XL Group senior vice president Kimberly] Holmes. "It didn't matter how good I was at mathematics. If I couldn't communicate my ideas, I couldn't add any value to the business.'"
>
> Casualty Actuarial Society, "In Predictive Modeling, Actuaries Essential to the Future," 2015

> "Actuaries often collaborate with various personnel, including programmers, accountants, and senior management, which makes it imperative that they can communicate and work effectively with others. Strong oral communication skills enable actuaries to explain complex technical and statistical details to a diverse audience, while solid writing skills ensure that findings and solutions are easily understood in memos and written reports. . . . Actuaries also often lead teams on a variety of projects and thus must be able to handle an assortment of personalities." Johnston, Matthew, "The Top 5 Skills Every Actuary Needs," 2019

> "Other evidence suggests that more assets than STEM skills alone are required for productivity growth. First, there are many types of innovation, and not all of them depend on STEM skills. Complementary skills, such as communication, teamwork, and leadership, are also important in and of themselves, as well as to maximize the impact of STEM skills."
>
> Council of Canadian Academies, 2015. *Some Assembly Required: STEM Skills and Canada's Economic Productivity*. Ottawa (ON): The Expert Panel on STEM Skills for the Future, Council of Canadian Academies.

> "The fast-moving and unpredictable job market is likely to give a growing head-start to job-seekers who have paid less attention to skills tied to a specific occupation than to broad "competencies" applicable to a wide range of jobs . . . . These attributes – also known as employability skills or soft skills – include critical thinking, problem-solving, communication skills, numeracy, teamwork and time management."
>
> Simon, Bernard, *Skills development in Canada: so much noise, so little action*. Report for the Council of Chief Executives, 2013.

This course is designed to give you instruction and practice in the oral and written forms of communication that you as a Math and/or Computer Science student will need in the academic environment and in the workplace. Much of the work that you do this term will rely on your cooperation as a member of a team, although this will be of course virtual collaboration. Please note that because of changed circumstances, we must adapt! You will need to reach out to classmates using the options available to you.

By the end of the term you will have gained confidence in your ability to complete a variety of projects that involve strong communication skills; you may also have samples of your best writing to show potential employers. In addition, you will acquire confidence in working as part of a team, practicing professional behavior, thinking critically, and making oral presentations.

**Recommended Text:** link to Purdue University's Online Writing Lab (OWL).

**Course Requirements and Assessment:**

| Assessment | Due Date | Weighting |
|---|---|---|
| Participation and peer assessment | Throughout the term | 10% |
| Short assignments (four) | Throughout the term | 40% |
| "Client meeting" video assignment | February 25 | 15% |
| Team project proposal | March 9 | 5% |
| Report OR recorded presentation | April 8/17 | 25% |
| Reflection assignment | April 17 | 5% |

**1. Participation and peer assessment (10%)**. Weekly questions will be posted in a discussion forum, and you are strongly encouraged to contribute responses to these questions. You will also occasionally be assigned peer editing work

(reviewing a classmate's draft using guiding questions). Because of the unfortunate situation we find ourselves in, these will be the only ways that I will be able to assess your willingness to engage with your classmates in terms of contributing your thoughts about the course material. Concise yet thoughtful responses, substantiated with examples where possible, will be appreciated.

**2. Short assignments (40%).** I will post six assignments throughout the term, of which you will choose four to complete: choose the ones that best match your learning needs. These assignments will usually be available on Thursdays and due the following Sunday. Each assignment will be worth 10%, and one may be resubmitted.

**3. "Client meeting" video assignment (15%).** Working with a partner (either a classmate or a family member or friend), act out the roles of a math specialist explaining (using non-technical language) a math concept to a non-specialist (client or other interested person). The 10-minute video will make use of strategies such as narrative, analogy, appropriate non-specialist language, and the use of props to help the client understand the concept. The student playing the role of the non-specialist client will ask appropriate questions in seeking clarification. The "client" will be assumed to have **absolutely no technical background**. The video may be in the form of a recorded online conference call, using a program such as Zoom. A summary "take-away" document should also be submitted along with the video. More guidelines will be provided.

**4. Team project proposal (5%)**. Teams of 4 or 5 members will be randomly formed roughly mid-way through the term or earlier (you can let me know if you have classmates in the course that you would like to work with, and I will try to accommodate your request). The objective of the project is to work together online (using the forum of your choice, such as Zoom for team meetings, e-mail, Facebook pages, Google Docs, etc.) to research an issue related to mathematics or a related branch of mathematics, targeted to a specific audience. There will also be an option to explore the viability of a new technology or product targeting your peers; for this option you must provide a rationale for your design *based on research* and suggest what will be unique about your product. The first task will be to collaborate to create a proposal that will be reviewed by your classmates and by me for approval (changes to the project plan may be suggested or required). Technically-savvy teams may also opt to present their proposal audio-visually. More specific guidelines for all aspects of the project will be provided.

**5. Research report OR recorded presentation (25%).** I will provide some insights about the content and design of white papers and reports. If your team chooses this option, each member of the team will be expected to contribute an equal amount of content and writing, including analytical content. In week 11, your first draft will be given to another team for assessment / feedback. After your draft is returned, you will have until April 17 to revise it and submit it. The white paper or report must show evidence of persuasive content, effective design, and strong clarity of expression. Shared *or* individual grades will be awarded based on the team's preference.

If your team chooses this option in week 12, each team member will submit a video in which they present their research and analysis. Videos will begin and end with transitions to aid in the flow of information; another option is to work together to edit the individual sections into one cohesive video, which should not be longer than 20 minutes in total. Each team will also view and comment on the videos of one other team. I will be assessing your ability to present the information concisely, clearly, and professionally, and to convey a sense of team cohesion. I will provide more information about how to shape and deliver your information.

**6. Learning reflection assignment (5%).** For this assignment you will write honestly about your work during the term, focusing on ideas that are relevant to your current learning needs and your career goals (as they relate to professional communication). You will be expected to provide examples from your work to validate your ideas. I will provide guiding questions to help you to compose your learning reflections. The assignment is due on April 17.

**POLICY ON LATE WORK, MISSED ASSIGNMENTS, AND MAKE-UP TESTS:** Project assignments that are submitted late without a valid excuse will under normal circumstances be penalized 2% per weekday. However, I realize that the situation we are in is creating problems and stress, so I am relaxing these expectations. I will very much appreciate it if you let me know that work will be coming in late and provide legitimate reasons for requesting an extension. This is an excellent opportunity to practice professional, polite and formal e-mail communication. With respect to drafts, however, it is very important to do your best to have something ready for peer editing to avoid getting too far behind.

**RULES FOR GROUP WORK IN ASSIGNMENTS:** When working on a group assignment, a Group Assignment Checklist must be completed and submitted.

**CORRESPONDENCE:** Students using e-mail to contact me must include their first and last names, student number, and course section in which they are enrolled in the e-mail subject line. E-mails composed in English 119 must be formally and professionally written.

***OTHER IMPORTANT INFORMATION***

**Academic Integrity:** In order to maintain a culture of academic integrity, members of the University of Waterloo community are expected to promote honesty, trust, fairness, respect, and responsibility. [Check www.uwaterloo.ca/academicintegrity/ for more information.]

Please remember that the course content is the instructor's "intellectual property": content may not be re-posted online without the instructor's permission.

**Discipline:** A student is expected to know what constitutes academic integrity, to avoid committing an academic offence, and to take responsibility for their actions. [Check www.uwaterloo.ca/academicintegrity/ for more information.] A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course instructor, academic advisor, or the Associate Dean. When misconduct has been found to have occurred, disciplinary penalties will be imposed under the St. Jerome's University Policy on Student Discipline, www.sju.ca/sites/default/files/PLCY_AOM_Student-Discipline_20131122-SJUSCapproved.pdf. For information on categories of offences and types of penalties, students should refer to University of Waterloo Policy 71, Student Discipline. For typical penalties, check the Guidelines for the Assessment of Penalties.

**Grievance:** A student who believes that a decision affecting some aspect of their university life has been unfair or unreasonable may have grounds for initiating a grievance. Read the St. Jerome's University Policy on Student Petitions and Grievances, www.sju.ca/sites/default/files/upload_file/PLCY_AOM_Student-Petitions-and-Grievances_20151211-SJUSCapproved.pdf. When in doubt, please

be certain to contact the St. Jerome's Advising Specialist, Student Affairs Office, who will provide further assistance.

**Appeals:** A decision made or penalty imposed under the St. Jerome's University Policy on Student Petitions and Grievances (other than a petition) or the St. Jerome's University Policy on Student Discipline may be appealed if there is a ground. A student who believes they have a ground for an appeal should refer to the St. Jerome's University Policy on Student Appeals.

**Note for students with disabilities:** AccessAbility Services, located in Needles Hall (Room 1401) at the University of Waterloo, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with AccessAbility Services at the beginning of each academic term.

**Course Outline / Class Schedule**

| | |
|---|---|
| **Week 1** | Jan. 12: course introduction, academic integrity, ways of thinking about professional communication |
| **Week 2** | Jan 19: communicating with employers and colleagues |
| **Week 3** | Jan 26: communicating procedures |
| **Week 4** | Feb. 2: clarity and elegance in writing |
| **Week 5** | Feb. 9: communicating technical ideas to non-specialists, start of video assignment |
| **Week 6** | Feb. 23: start of team project, team selection, preliminary research skills, working collaboratively and communicating ideas. **Submit your "client video" assignment by Feb. 25** |
| **Week 7** | March 2: creating effective proposals, presentation skills and |

| | |
|---|---|
| | creating effective presentation visuals |
| **Week 8** | March 9: working with research and communicating analysis, **proposal submissions and peer review** |
| **Week 9** | March 23: reports and white papers, progress reporting |
| **Week 10** | March 30: **project progress check-in** |
| **Week 11** | April 6: presenting as a team, reflection assignment, **submission of report section drafts and peer review of project work so far (April. 8)** |
| **Week 12** | April 13: course conclusion. **Submit final draft of report (or presentation) and learning reflection by April 17** |