Instructor: Dr. Clive Forrester
Term: Winter 2016
Class times: 2:30pm - 3:50om, MW
Classroom: DWE2527
Office hours: Room HH141, Mon. 4-6pm (or by appointment)
Email: clive.forrester@uwaterloo.ca ext: 37905

Course Description:
“Their bags are packed with calculators, protractors and new pencils, but the curriculum Ontario kids will learn in math class this fall might be what’s dragging down their math scores.”

Ashley Csanady, National Post Sept. 5, 2016

“Ontario’s math scores started declining as students took the new curriculum, according to EQAO data.”

Educators at the high school level are describing the current declining match scores in Ontario as a “crisis.” Some attribute this to a general fear and discomfort with the subject, but also to intimidating and unengaging methods of communicating topics in mathematics. This course hopes to address the latter problem - how experts and practitioners of math communicate core principles in the subject area without alienating the layperson. We will draw on a variety of communication techniques, ranging from report writing to group presentations to podcasting in an effort to develop a skillset needed to strengthen math enthusiasts as competent and effective communicators.

Learning Outcomes:

At the end of this course, participants should be able to:

A. Demonstrate the principles of critical thinking, reading and writing
B. Create original material for the communication of math concepts
C. Present information in a professional and engaging manner
D. Conduct themselves confidently in the context of an interview
E. Understand the specific communication strategy(ies) needed for a task
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Area of Math</th>
<th>Topic</th>
<th>Readings &amp; Assignments</th>
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</thead>
</table>
| 1 | Jan 4 | | **Course Introduction**  
- Course structure and objectives  
- Methods of assessment  
- Expectations  
- Intro to the math “crisis” | Read: C.D. Howe Institute article |
| 2 | Jan 9 | | **Areas of Math to tackle & Group formation**  
- What 3 areas of math could be considered “core” to beginners?  
- What makes these areas difficult for the layperson?  
- Group formation | Handbook: Ch. 1, pp. 5-11. |
| | Jan 11 | | **Intro to Presentation formats**  
- Report writing  
- Presentation  
- Podcasting | Engl for Pres. Ch. 6, pp. 75-79 |
| 3 | Jan 16 | | **Writing for Math & Computer Sci**  
- Style and layout of scientific writing  
- Preparing reports | Handbook: Ch. 1, pp. 5-14 |
| | Jan 18 | | **Report #1**  
- Narrow topic for report  
- Gather data  
- Prepare draft | Report #1 Due |
| 4 | Jan 23 | | **Presentation planning**  
- Gathering content  
- Choosing style  
- Execution | Engl. for Pres.: Ch. 8, pp. 99-110 |
| | Jan 25 | | **Presentation #1**  
- Group presentation using traditional presentation tools | Presentation #1 Due |
| 5 | Jan 30 | | **Articulating relevance**  
- Outlining skills used in math  
- Explaining how skills are useful | Handbook: Ch. 4, pp. 53-58 |
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<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Details</th>
<th>Due Date</th>
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<tbody>
<tr>
<td>Feb 1</td>
<td><strong>Podcast #1</strong></td>
<td>Interview explaining relevance of math</td>
<td>Podcast #1 Due</td>
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<tr>
<td>Feb 6</td>
<td><strong>Writing an executive summary</strong></td>
<td>• Purpose and layout                         • Data gathering for exec. summary</td>
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<tr>
<td>Feb 8</td>
<td><strong>Report #2</strong></td>
<td>• Putting together the exec summary</td>
<td>Report #2 Due</td>
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<tr>
<td>Feb 13</td>
<td><strong>Designing interactive presentations</strong></td>
<td>• Software and tools to enhance presentations                          • Use in the workplace</td>
<td>Engl. for Pres.: Ch. 2, pp. 7-12</td>
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<td>Feb 15</td>
<td><strong>Presentation #2</strong></td>
<td>• Multimodal presentation</td>
<td>Presentation #2 Due</td>
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<td>Feb 20</td>
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<td><strong>Reading Week No Classes</strong></td>
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<td>Feb 22</td>
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<td>Feb 27</td>
<td><strong>Creating and Assessing Solutions</strong></td>
<td>• Identifying problem areas in math communication</td>
<td>Engl. for Pres.: Ch. 9, pp. 111-118</td>
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<tr>
<td>Mar 1</td>
<td><strong>Podcast #2</strong></td>
<td>• Interview on approaches to math crisis in Ontario</td>
<td>Podcast #2 Due</td>
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<td>Mar 6</td>
<td><strong>Doing Research</strong></td>
<td>• Research writing in math and computer science                          • Creating short research outlines</td>
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<td>Mar 8</td>
<td><strong>Report #3</strong></td>
<td>• Design research to address communicative issues for math teachers</td>
<td>Report #3 Due</td>
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<td>Mar 13</td>
<td><strong>Designing booth-style presentations</strong></td>
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<td>Engl. for Pres.: Ch. 12, pp. 149-155</td>
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<td>Week</td>
<td>Date</td>
<td>Activity</td>
<td>Due Date</td>
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<td>11</td>
<td>Mar 20</td>
<td>Presentation #3 - Using the tradeshow approach to presentation</td>
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<td><strong>Presentation #3</strong></td>
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<td>● Trade-show style class presentations on solutions to math crisis</td>
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<td>12</td>
<td>Mar 27</td>
<td>Preparing the portfolio</td>
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<td>● Incorporating different formats of information</td>
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<td>● Using the portfolio in the workplace</td>
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<td>Mar 29</td>
<td>Podcast #3</td>
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<td>● Interview summarizing the previous weeks and outlining prospects for alleviating the crisis</td>
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<td>13</td>
<td>Apr 3</td>
<td>Course Review and Wrap Up</td>
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**Recommended Texts (all readings are added to LEARN)**


**Assessment breakdown**

1. Class & Group participation (15%): This mark is based on the following:
   a. Consistent and early attendance at class
   b. Willingness to volunteer answers and contribute to discussion
   c. Participation in group activities

2. Report Writing (30% - 3 x 10% each): Each student will individually prepare three written reports based on different aspects of the math crisis throughout the course. Detailed instructions for this assignment will be given for each report.
3. Presentations [Group] (30% - 3 x 10% each): This will be done in groups on specific topics related to the course material. Presenters will use a variety of presentation tools and styles to deliver the content.

4. Podcasts [Group] (25 % - 2x8%, 1x9%): Podcasts will take the form of a group panel discussion that will be recorded and archived on the class podcast station.

**Keeping in Touch With Me**

The first year at a university can be tough - trust me I know. While you try to figure out your place at the university, feel free to stop by during office hours and have a chat about your writing. If for some reason you can’t come to the scheduled office hours, we can make an appointment to meet virtually via Skype or Facetime. Most importantly, do not wait until you feel completely overwhelmed to seek help. Let's start talking as early as possible.

**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. See the [UWaterloo Academic Integrity Webpage](https://uwaterloo.ca/academic-integrity/) and the [Arts Academic Integrity Office Webpage](http://arts.uwaterloo.ca/current-undergraduates/academic-responsibility) for more information.

**Discipline**

A student is expected to know what constitutes academic integrity to avoid committing academic offenses and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offense, or who needs help in learning how to avoid offenses (e.g., plagiarism, cheating) or about “rules” for group work/collaboration should seek guidance from the course professor, academic advisor, or the undergraduate associate dean. For information on categories of offenses and types of penalties, students should refer to [Policy 71, Student Discipline](http://www.adm.uwaterloo.ca/infosec/Policies/policy71.htm). For typical penalties check [Guidelines for the Assessment of Penalties](http://www.adm.uwaterloo.ca/infosec/guidelines/penaltyguidelines.htm).