PHYS*4300/NANO*4900
Inquiry in Physics/Nanoscience
Winter 2018 Course Outline
Department of Physics
University of Guelph

Course Instructor
Name: Joanne O'Meara
Office: MacN 323
Extension: 53987
Email: omeara@uoguelph.ca

Official Meeting Times
Tuesdays and Thursdays 2:30 to 5:20 pm ANNU 204
Fridays 2:30 to 5:20 pm MACK 238

see the semester schedule below for more details – we will not be meeting every week for 9 hours

Course Description
PHYS*4300/NANO*4900 is designed to provide students with an opportunity to further hone their communication skills, both in writing and speaking, to diverse audiences. In this course, students will undertake independent study of the scientific literature and learn how to communicate scientific research effectively using the most appropriate modality. Through a number of formative writing and presenting assessments, students will work towards the summative group project at the end of the course, which will be shared with the physics community through an open house event.

Course Objectives
1) to become familiar with the literature in a focused area of interest
2) to improve analysis skills through critical reading of research or popular literature
3) to practice and improve oral presentation skills, tailored to a specific audience
4) to practice and improve written communication skills, tailored to a specific audience
5) to work collaboratively and constructively in a group to incorporate presenting and writing skills in a science communications project
Evaluation

<table>
<thead>
<tr>
<th>Assessment</th>
<th>% of Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participation</td>
<td>15%</td>
</tr>
<tr>
<td>Speaking assignments</td>
<td>25%</td>
</tr>
<tr>
<td>Writing assignments</td>
<td>25%</td>
</tr>
<tr>
<td>Final Project</td>
<td>35%</td>
</tr>
</tbody>
</table>

The participation mark will be determined based on the individual's degree of involvement in discussions during class time, as well as through asking questions and providing constructive feedback for classmates. Students who are unable to attend a regularly scheduled session for medical or other reasons should inform the instructor in advance. **Unexplained extended absences and/or failure to participate actively in class meetings will affect your overall grade in the course.**

Assignments will be set weekly. These assignments will include reading, viewing, or listening to relevant materials for our in-class discussions, writing assignments, presentations, as well as work related to your group project. Multiple opportunities to practice writing and presenting will be provided to ensure skill development. It is critical that you complete all such assignments, particularly those related to preparing for in-class discussions. Your participation mark depends strongly on your informed participation in discussions, for which preparation is key. The schedule for the semester is included below; please refer to this schedule regularly and consult Courselink for updates throughout the semester. Late submissions of assignments will be penalized 10% per day for a maximum of 5 days overdue. After 5 days, the assignment will be given zero unless academic consideration has been granted (see below).

**Speaking Assignments (25% of final mark)**
You will complete 3 presentation assignments during the semester. More details will be provided as the semester progresses.

1) Informal 3 minute presentations of your chosen topic – 5%
2) Media interviews – 10%
3) Video explanations – 10%

The due dates are provided in the table below.

**Writing Assignments (25% of final mark)**
You will complete 3 writing assignments during the semester.

1) Written pitch for a story in Science Corner for the Guelph Mercury-Tribune (< 500 words) – 5%
2) Short feature on a graduate student/faculty member/alumnus from physics or nanoscience at U of G (500 to 750 words) – 10%
3) Short feature on an upcoming experiment at Jefferson Laboratories (500 to 750 words) – 10%

The due dates are provided in the table below.
Group Project (35% of final mark)
Students will work in groups to develop a science communications project that showcases the writing and presenting skills they have developed during the course. In discussion with the course instructor, each group will propose and develop their own project to present to the physics community at the end of the semester at our open house event. Examples of appropriate group projects include (but are not limited to): designing and creating a series of short physics-related videos (animated, live-action, lightboard, whiteboard ...), developing a hands-on, low cost, activity kit for a particular physical science topic in the K-12 curriculum, writing and producing a physics-themed series of podcasts, designing and building a science centre/museum exhibit, creating a video game that teaches physics concepts, etc. This project is in lieu of a final examination and is worth a significant portion of your final grade – planning for this project needs to begin as soon as possible.

NOTE: 5% of your grade on this project will come from the timely submission of a clearly laid out proposal, with all group members identified. The proposal is due Friday Feb 16th.

Proposed Schedule for the Semester

<table>
<thead>
<tr>
<th>Week</th>
<th>In-Class Sessions</th>
<th>Assignments / Deadlines</th>
</tr>
</thead>
</table>
| 1 (Jan 8 to 12) | Introductions, course structure, general discussion of the goals of science communication  
Tuesday Jan 9 – 2:30 to 4:20 pm | The only preparation needed this week is to have an idea of the topic and your target audience for your presentation in week 3. |
| 2 (Jan 15 to 19) | Improv for Scientists  
- speak more spontaneously about research  
- pay closer attention to audience  
Tuesday Jan 16 – 2:30 to 4:20 pm | This exercise is worth 5% of your final grade. |
| 3 (Jan 22 to 26) | Presenting exercise #1  
Informal 3 minute presentations of your chosen topic for your specified target audience  
We will meet Tuesday, Thursday & Friday this week. | |
<table>
<thead>
<tr>
<th>Week</th>
<th>In-Class Sessions</th>
<th>Assignments / Deadlines</th>
</tr>
</thead>
</table>
| 4 (Jan 29 to Feb 2) | Discussion  
- tips for effective interviewing (i.e. being the interviewer)  
- tips for communicating with media representatives (i.e. being the interviewee)  
Tuesday Jan 30 – 2:30 to 4:20 pm | See Courselink for readings/viewings |
| 5 (Feb 5 to 9) | **Presenting exercise #2**  
Media interviews  
We will meet Tuesday, Thursday & Friday this week. | This exercise is worth 10% of your final grade. |
| 6 (Feb 12 to 16) | Discussion:  
- writing with clarity for different scenarios  
Tuesday Feb 13 – 2:30 to 4:20 pm | See Courselink for readings  
Group Project Proposal Due – Friday Feb 16  
Your proposal is worth 5% of your final grade. |
| (Feb19 to 23) | **Reading Week** | |
| 7 (Feb 26 to Mar 2) | **Presenting exercise #3**  
Video explanations  
We will meet Tuesday, Thursday & Friday this week. | This exercise is worth 10% of your final grade. |
| 8 (Mar 5 to 9) | Discussion  
- Personalizing the impersonal  
- Painting pictures with words (writing for radio, podcasts, etc.)  
Tuesday Mar 6 – 2:30 to 4:20 pm | See Courselink for readings/audio clips |
| 9 (Mar 12 to 16) | Discussion – sharing science through storytelling  
Tuesday Mar 13 – 2:30 to 4:20 pm | See Courselink for readings  
**Writing assignment #1 due - Friday March 16**  
This exercise is worth 5% of your final grade. |
<p>| 10 (Mar 19 to 23) | No class meeting this week – work on your group project &amp; your second writing assignment | |</p>
<table>
<thead>
<tr>
<th>Week</th>
<th>In-Class Sessions</th>
<th>Assignments / Deadlines</th>
</tr>
</thead>
<tbody>
<tr>
<td>11 (Mar 26 to 30)</td>
<td>Discussion – science in print media</td>
<td>See Courselink for readings/viewings</td>
</tr>
<tr>
<td></td>
<td>Tuesday Mar 27 – 2:30 to 4:20 pm</td>
<td>Writing assignment #2 due - Friday Mar 30</td>
</tr>
<tr>
<td></td>
<td></td>
<td>This exercise is worth 10% of your final grade.</td>
</tr>
<tr>
<td>12 (Apr 2 to 6)</td>
<td>Group Project Open House!</td>
<td>This project is worth 30% of your final grade.</td>
</tr>
<tr>
<td></td>
<td>Thursday Apr 6 – 2:30 to 4:20 pm</td>
<td></td>
</tr>
</tbody>
</table>

Your third writing assignment is due at the end of the first week of exams – 11:59 pm on Saturday April 14th. This exercise is worth 10% of your final grade.

This schedule is tentative and subject to change. Consult Courselink regularly to remain up to date with the course activities and deadlines/due dates.

**Readings/Viewings:**

- [Neil deGrasse Tyson & Richard Dawkins discussing the importance of style as well as content](https://www.youtube.com/watch?v=HlKZzJ5A2SM) – November 22, 2006. Originally recorded November 5-7, 2006 at Beyond Belief: Science, Reason, Religion and Survival, La Jolla, CA. (WARNING – coarse language at the very end)
- [Six Principles of Sticky Ideas](https://www.worldcreativityforum.com) – Dan Heath, 2008 World Creativity Forum, excerpt
- [Words, Words, Words, blog post by 4 gravitons](http://www.blogs.4gravitons.com) (aka Matt von Hippel, post doc at PI) Dec 9, 2016

(This is not a complete list – Courselink will be updated regularly with your pre-class preparation materials)

**Academic Consideration**

If you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor in writing, with your name, id#, and e-mail contact.

See the academic calendar for information on regulations and procedures for academic consideration.
Academic Misconduct

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community, faculty, staff, and students to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring.

University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is detailed in the Undergraduate Calendar.

A helpful resource in understanding academic misconduct and plagiarism can be found at: plagiarism.org

Turnitin

In this course, your instructor will be using Turnitin, integrated with the CourseLink Dropbox tool, to detect possible plagiarism, unauthorized collaboration or copying as part of the ongoing efforts to maintain academic integrity at the University of Guelph.

All submitted assignments will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers. Use of the Turnitin.com service is subject to the Usage Policy posted on the Turnitin.com site.

A major benefit of using Turnitin is that students will be able to educate and empower themselves in preventing academic misconduct. In this course, you may screen your own assignments through Turnitin as many times as you wish before the due date. You will be able to see and print reports that show you exactly where you have properly and improperly referenced the outside sources and materials in your assignment.

Recording of Materials

Presentations that are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.
Accessibility

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment.

Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact the Student Accessibility Services (SAS) as soon as possible.

For more information, contact SAS at 519-824-4120 ext. 56208 or email csd@uoguelph.ca or see the website: http://www.uoguelph.ca/csd/

E-mail Communication

As per university regulations, all students are required to check their uoguelph.ca e-mail account regularly. E-mail is the official route of communication between the University and its students.

Course Evaluation Information

The Department of Physics requires student assessment of all courses taught by the Department.

These assessments provide essential feedback to faculty on their teaching by identifying both strengths and possible areas of improvement. In addition, annual student assessment of teaching provides part of the information used by the Department Tenure and Promotion Committee in evaluating the faculty member's contribution in the area of teaching.

The Department's teaching evaluation questionnaire invites student response both through numerically quantifiable data and written student comments. In conformity with University of Guelph Faculty Policy, the Department Tenure and Promotions Committee only considers comments signed by students (choosing "I agree" in question 14). Your instructor will see all signed and unsigned comments after final grades are submitted. Written student comments may also be used in support of a nomination for internal and external teaching awards.

NOTE: No information will be passed on to the instructor until after the final grades have been submitted.

Drop date

The last date to drop one-semester courses without academic penalty is March 9, 2018. For regulations and procedures for Dropping Courses, see the current Academic Calendar.