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Class Time: Tuesdays 7 pm to 10 pm  
Location: BSB room 119

Course Description:

This class develops the abilities of students to communicate science effectively in a variety of real-world contexts. Projects focus on speaking and writing, engaging in scientific discourse, developing evidence-based arguments, editing the work of others, and providing constructive feedback. Students in this course will be mentors for students in Level II.

Format and Readings:

Attendance is mandatory for this course in both lectures and tutorials.

This course includes both lecture hours and hands-on practical experience in mentoring that is scheduled in tutorial time.

LIFE SCIENCE 3XX3 Peer mentors will interact with Level 2 Science students enrolled in LIFE SCIENCE 2AA3 in a tutorial-like environment in a 24:2 (student:peer mentor) ratio.

There are typically 5 scheduled hours per week that will be split between lecture and tutorial time. In some weeks, there are 3 hours of lecture and 2 hours of tutorials; in other weeks 2 hours of lecture and 3 hours of tutorials. Up to one hour of lecture time will be devoted to tutorial preparation.

There are no required textbooks for this course. Assigned readings will be accessible online.
Learning Objectives:

By the end of the course, students should be able to:

- Define and achieve personal learning goals in relation to mentoring in science:
  - Develop SMART goals, intended learning outcomes and a mentoring philosophy
  - Identify possible learning strategies, experiences, or processes that would lead to achievement of goals which align to mentoring philosophy
  - Provide evidence of achievement of mentoring goals and learning outcomes
- Develop the ability to communicate science effectively in a variety of real-world contexts and disseminate this knowledge to mentees
  - Develop speaking and writing skills suited to various audiences
  - Develop ability to engage in scientific discourse and constructive feedback
  - Understand, apply, and practice science-based facilitation skills to engage students in scientific discourse and evidence-based argumentation, to manage group dynamics, and to guide students to appropriate resources

Break down of Assessments:

- Learning goals, plan and proposed evidence: 10%
- Pedagogical mini thesis presentation: 5%
- Integration of theory and practice: 10%
- Mentoring philosophy: 5%
- Communicating science to academics: 10%
- Develop scientific outreach program to address a scientific issue within society: 10%
- Portfolio: 35%
  - Mentoring philosophy in science communication (10%)
  - Goals (0%)
  - Evidence – mid-term survey monkey (~3%) plus 10% in portfolio
  - Summative analysis (12%)
- Participation: 15%

Mentoring Goals, Plan, and Proposed Evidence (10%)

A clearly articulated statement of personal learning goals is significant for developing the skills needed to successfully support the learning of second-year students. Literature and peer discussion on mentorship and leadership will help shape your personal goals. After receiving feedback, you will develop a final statement and plan for how you will accomplish your goals. You will also include a plan for measuring your achievements.

Due Dates:
- Submit preliminary draft of your mentoring goals to Avenue Dropbox by 6:30 pm on September 12. ALSO bring a copy to class on Sept 19 for peer feedback.
- Submit your revised goals and achievement to Avenue Dropbox by 6:30 pm on September 19.

Pedagogical mini thesis presentation on one paper (5%)

Students are to pick one peer-reviewed journal article in pedagogical research. They will deliver a 3 min oral presentation with or without tools. This assignment is designed firstly, to orient you to the basis of what is pedagogical research and its application, as well as secondly, to help you develop the skill of knowledge translation by practicing effective communication. Pedagogical research concerns “the
processes and relationships of learning and teaching” (Stierer and Antoniou, 2004, p. 277). You will be challenged with choosing a scholarly research article of pedagogical origin and summarizing the literature into a 3-minute “thesis” oral presentation, followed by a two-minute questioning period. You may choose to deliver you presentation with the use of PowerPoint or other creative media. You will be assessed on your ability to concisely summarize the research, understand your audience and creatively communicate the content. These skills will be used frequently throughout the semester, both in class and tutorial whilst mentoring 2AA3 students. 3-minute thesis will be delivered both in class and in tutorial to student mentees.

Due Dates:
- Submit peer-reviewed paper to Avenue Dropbox by 6:30 pm on September 19th.
- 3 min oral presentation with 2 min questions will be given September 26th and October 3rd.

Integration of theory and practice (10%)
This on-going assignment will help you develop your skills in science communication as a reflective practitioner as you work on implementing mentor-related principles and theory into real-world practice. You will regularly keep notes on your experiences that reflect upon on what is being discussed in lecture, your readings and the application of this material to your experiences in mentoring students. The idea of these entries is to help you focus on relating the course material to practical experiences so you can begin to make connections between theory and practice. You will use your Informal Practice Notes to prepare a Formal Written Analysis that demonstrates your ability to integrate your practice mentoring experiences with the mentoring literature.

Due dates:
- Informal Practice Notes: Multiple due dates throughout semester (see Avenue Quizzes for deadlines)
- Survey monkey – October 17th at 6:30 pm with two forms of evidence, one quantitative and one qualitative
- Final copy of Formal Written Analysis due to Avenue Dropbox on November 14 at 6:30 pm.

Mentoring Philosophy (5%; plus 10% of that is incorporated as part of the Mentoring Portfolio mark)
In a statement called a Mentoring Philosophy, you will articulate your beliefs about what makes for good mentoring, what mentoring means to you and how you apply it in life. You will write this as a formal statement that is self-focused and written in the first person. As the course progresses, you will have many experiences from which to draw upon to create and shape your mentoring philosophy. You will consider the importance of mentorship in the field of science (as discussed throughout the term) as well as your own research interests in relation to your mentorship experiences for this assignment. A draft will be submitted to your instructors for feedback. The final version that you submit with your culminating assignment, the Mentoring Portfolio, should take into consideration the feedback you receive on an earlier draft.

Due dates:
- Submit preliminary draft of your mentoring philosophy to Avenue Dropbox by 6:30 pm on October 24. ALSO bring a printed copy of your philosophy to class for peer-review on October 24.
- Submit your final REVISED mentoring philosophy as part of your Mentoring Portfolio (see culminating assignment below).

Communicating Science to academics (to be included in mentoring portfolio i.e. writing sample) (10%)
This assignment helps to develop skills in understanding and communicating scholarly and scientific articles. This skill is essential as it is highly regarded that “science is not finished until it’s communicated” – Sir Mark Walport. The task for this assignment is to choose a peer reviewed scientific
article and transform it into a daily news article, such as the ones seen on Facebook or other social media. [http://dailynews.mcmaster.ca/article/new-genes-discovered-regulating-brain-metastases-in-lung-cancer-patients/](http://dailynews.mcmaster.ca/article/new-genes-discovered-regulating-brain-metastases-in-lung-cancer-patients/) or [http://dailynews.mcmaster.ca/article/scientists-develop-new-supplement-that-can-repair-rejuvenate-muscles-in-older-adults/](http://dailynews.mcmaster.ca/article/scientists-develop-new-supplement-that-can-repair-rejuvenate-muscles-in-older-adults/). Your aim is to be able to translate the scientific jargon of a peer reviewed article and communicate it to a lay population in a way that is understandable and relatable, without over-emphasizing any claims or misleading from the reader. The primary goals for this assignment are to use appropriate media, skills and dialogue to reproduce personal responses such as awareness, interest, opinion-formation, enjoyment and understanding.

**Due dates:**
- Submit communication to Avenue Dropbox by 6:30 pm on October 31.
- Present communication to class on Nov 7th and 14th

**Develop scientific outreach program to address a scientific issue within society - oral presentation no powerpoint (10%)**

For this assignment, you will be tasked with choosing a scientific based issue and developing an outreach program (or initiative) designed to address the issue. This assignment will test your ability in knowledge translation as you will be tasked with effectively communicating the literature and scientific reasoning to why the issue you have chosen is of importance to society. You will present your outreach program to the class orally without the use of PowerPoint or electronic visual aid, pamphlets or flyers are highly encouraged to help address your issue and outline your outreach program. It is assumed the audience is lay (unfamiliar with the science regarding the issue), and you are to design your presentation and visual accessories/ handouts for such. You will be challenged with educating your audience in an engaging and persuasive manor that will leave them with a deeper understanding of the science regarding your issue. The skill of being able to translate the scientific literature into something meaningful to the average individual often undervalued in the scientific community and will be regularly practiced throughout the semester.

**Due dates:**
- Present outreach program to class on Nov 21th and 28th

**Culminating Assignment: Mentoring Portfolio (35%)**

Your mentoring portfolio will draw upon your learning and practice in lecture and tutorial; it is where you will demonstrate your overall growth and learning as a peer-mentor. This assignment is grounded in your personal goal development and will draw from your practice notes that will assist you in building your portfolio. Throughout the semester you will document your learning experiences and evidence of achievement, which you will build into your portfolio. This assignment will be useful to you as you develop your career in science and interest in teaching and mentoring new learners. Upon the completion of the mentoring portfolio, you will have enhanced your skills as a reflective science mentor-practitioner, established personal mentor philosophies, and collected evidence of achievement from your practice.

**Due date:**
- Submit your final Mentoring Portfolio by 6:30 pm on December 5.

**In-Class Discussion, Participation, and Reflection (15%)**

Weekly attendance in both lecture and tutorial is a mandatory aspect of this course. You will be invited to discuss your written reflections and also comment on your peers’ open reflections. The purpose of these exercises is to help you practice your skills in listening and communicating with others, which is...
an essential part of your role as a mentor. This collegial environment will also contribute to your personal goal achievement and mentoring philosophy.

Due date:
- Ongoing and regular contributions throughout semester

Policy Statements:

Assignment Deadlines & Missed/Late Work:
Students are expected to hand in all assignments on the specified due dates. Please note that late penalties will not be waived except in exceptional circumstances and on an individual basis. In accordance with University regulations, documentation is required for circumstances of health or emergency. Exceptional circumstances do not include conflicting due dates or a busy schedule.

Late submissions will be subject to a penalty of 10% per working day. Late submissions may also receive less thorough feedback from me. No assignments will be accepted after the last day of classes.

Given that some course assignments require electronic submission, you should be sure to familiarize yourself with the Avenue to Learn in advance of the deadlines, and to ask for assistance as necessary. Problems with electronic submission WILL NOT be accepted as an excuse for late submission of assignments.

McMaster Student Absence Form (MSAF):
This is an on-line, self-reporting tool for students to report absences that last up to 3 days and to request accommodation for any missed academic work that is worth less than 25% of the final grade. Please note that this tool cannot be used during any final examination period. It is the prerogative of the instructor to determine the appropriate relief for missed term work. You may submit a maximum of one request per term. The form should be filled out immediately when you are about to return to class after your absence. It is your responsibility to follow up with me immediately (within two working days) about the nature of the accommodation.

If you are absent for more than 3 days, have missed academic work worth 25% or more, or exceed one request per term, you must make an appointment with the associate dean’s office. You will be required to provide supporting documentation.

Academic Accommodation for Religious, Indigenous and Spiritual Observances (RISO):
McMaster strives to be welcoming and inclusive of all its members and respectful of their differences. Students, staff, and instructors come from a range of backgrounds, traditions and beliefs. The University recognizes that, on occasion, the timing of a student’s religious, Indigenous, or spiritual observances and that of their academic obligations may conflict. In such cases, the University will provide reasonable academic accommodations for students that are respectful, accessible, and fair.

When academic accommodations are necessary, students shall submit the RISO form to their Faculty, electronically or in person, normally within ten working days from the beginning of each term in which they are anticipating a need for accommodation.

Academic Integrity:
You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity. Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences—e.g., the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: “Grade of F assigned for academic dishonesty”), and/or suspension or expulsion from the university. It is your responsibility to understand what constitutes academic dishonesty. For information on the various types of academic dishonesty, please refer to the Academic Integrity Policy, located at: [http://www.mcmaster.ca/academicintegrity](http://www.mcmaster.ca/academicintegrity). The following illustrates only three forms of academic dishonesty: 1) Plagiarism—e.g., the submission of work that is not one’s own or for which other credit has been obtained. 2) Improper collaboration in group work. 3) Copying or using unauthorized aids in tests and examinations.
Inclusivity and Accommodations:
As instructors, we aim to foster a supportive, inclusive learning environment that will encourage both individual and collective growth. Any student who feels they require an accommodation based on disability, family status, or religion should contact me at the beginning of the semester to discuss your individual needs. Students with disabilities are required to register with Student Accessibility Services (SAS) first.

Course Modifications & Email Contact:
The instructor and university reserve the right to modify elements of the course during the term. The university may change the dates and deadlines for any or all courses in extreme circumstances. If either type of modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of students to check their McMaster email and the course website (in Avenue) weekly during the term and to note any changes. Please note that all emails you send to the course instructor must originate from your official McMaster University email account.

On-Line Elements:
In this course we will be using Avenue to Learn. Students should be aware that, when they access the electronic components of this course, private information such as first and last names, usernames for the McMaster e-mail accounts, and program affiliation may become apparent to all other students in the same course. The available information is dependent on the technology used. Continuation in this course will be deemed consent to this disclosure. If you have any questions or concerns about such disclosure please discuss this with the course instructor.