Western Science

Integrated Science 3002A: Science in Your Community

Course Outline: Fall 2024

1. Course Information

Course Title: Integrated Science 3002A: Science in Your Community

Section: Lecture: 001; Tutorial: 002

Calendar Description: Make an impact in your community through this experiential learning course. Engage with a local company or non-profit organization to advance scientific literacy and help them address scientific problems. Mentor and inspire newer undergraduates. Examine the impact of science in communities across the globe. Construct evidence-based responses to scientific issues.

Prerequisites: Enrolment in Year 3 of the Western Integrated Science program.

Antirequisites: None

Course Hours: 2 lecture hours and 2 tutorial hours per week.

Credit: 0.5

Lectures: Thursdays 6:30 pm – 8:30 pm, PAB-36

Tutorials: Thursdays 8:30 pm – 9:30 pm, PAB-36 (Designated for team meetings)
Fridays 2:30 – 3:30 pm, PAB-36 (Usually designated for team meetings)

*See lecture and tutorial schedule at end of course outline.

Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you will be removed from this course, and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

2. Instructor Information

Instructors:

Christina Booker
PhD, Analytical Chemistry
Assistant Professor, Department of Chemistry
Integrated Science Program
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Kristen Zinger
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Emails: We will strive to respond to your email within 24 hours on weekdays, but please allow up to 48 hours for a response. Please use your @uwo.ca email address and specify "INTEGSCI 3002A" within the subject of your email.

Office Hours: Please email your instructor(s) to make an appointment.

3. Course Website & Materials

All course material will be posted to OWL: https://westernu.brightspace.com/.

There are no additional required materials for this course.

Students are responsible for checking the course OWL site (https://westernu.brightspace.com/) on a regular basis for news and updates. This is the primary method by which information will be disseminated to all students in the class.

If students need assistance with the course OWL site, they can seek support on the OWL Brightspace Help page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800.

If this course is required to pivot online, you must have a stable internet connection and a computer with a working microphone and webcam.

4. Course Overview and Learning Outcomes

This experiential learning course will foster interaction between students and community partners regarding a specific project. Students will mobilize their classroom and laboratory knowledge in order to address questions of relevance to a local company or non-profit organization to positively impact our community. Students will identify, evaluate and construct an evidence-based stance on contentious products, or claims, in the media, or in society, on the basis of the science behind them and communicate these arguments to both scientific, as well as general, audiences. Students will also develop mentorship skills by partnering with first-year integrated science students to promote belonging in science and thriving within our Western scientific community.

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

- **Relate** interdisciplinary knowledge to various fields of research, practice, and policy in the community.
- **Define** terms used scientifically versus colloquially with respect to products or claims in the media/society.
- **Evaluate** a contentious product or claim and **construct** an evidence-based stance on the issue.
- **Explain** scientific arguments to both scientific and general audiences.
- **Identify** and **describe** specific local and/or social issues, explain governing structures and social policies that impact them, and identify barriers to implementing change.
- **Compare** and **critique** programs and services designed to minimize effects of social/local issues and generate strategies to improve their functioning and intended aims.
- **Describe** the composition of diverse populations and inequalities among those populations.
- **Mentor** newer undergraduate students to promote belonging and learning in science, and thriving in university
- **Manage** group projects from vision to completion by employing planning, delegation, prioritizing, time-management, and organizational strategies.
- **Reflect** upon your experience in terms of your perspective, personal goals and values, and course content, such as career exploration, business and leadership opportunities, deepening civic responsibility, and political awareness.

5. Course Schedule

Schedule is subject to change. Changes will be announced in-class and/or on OWL.

	Thursday Lecture/Tutorial: PAB-36 6:30 – 8:30 pm: Lecture/Discussion 8:30 – 9:30 pm: Teamwork/meeting time		**Friday Tutorial: WSC-240** 2:30 – 3:30 pm: Teamwork/meeting time	
Week	**Date**	**Topic/Assessments**	**Date**	**Topic/Assessments**
1	Sept. 5	**Introduction to Course** **Introduction to CEL** (Guest: Community Engaged Learning Team)	Sept. 6	**CEL Partners Visit** Partner preference survey due
2	Sept. 12	**Mentorship:** Learning Strategies (Guest: Richard Nahhas, Learning Development & Success**)** **Scientific Mentorship:** Promoting Science Identity & Belonging **CEL Project Activation**	Sept. 13	**Mentorship Kick-Off Event with INTEGSCI 1000Z course** *3:30 – 4:30 pm*, Location TBA *(Attend in-person if your schedule permits, OR submit 30-s intro video)*
3	Sept. 19	**Scientific Misconception Video Project Activation** **Scientific Misconception: Article Discussion** *Pre-Readings on OWL **Mentorship Activation**	Sept. 20	CEL Agreement Due
4	Sept. 26	**Science Impact in the Community*** *Pre-Readings on OWL **Mentorship:** Mental Health & Wellness	Sept. 27	
5	Oct. 3	**Technical Executive Report Discussion** **Scientific Misconception: Article Discussion** *Pre-Readings on OWL **Interpersonal & Intercultural Communication** (Guest: Nassisse Solomon, Centre for Teaching and Learning) **[CEL Progress Meeting #1]**	Oct. 4	**[CEL Progress Meeting #1]**
6	Oct. 10	**Integrated Science Mentorship with 2nd and 4th Year Students** **Mentorship Progress Discussion** **Scientific Misconception: Article Discussion** *Pre-Readings on OWL **[Video Progress Meeting]**	Oct. 11	**Reflection #1 Due** Submit Mentee Survey
Fall Reading Week				

7	Oct. 24	**Science Communication & Press Release** (Guest: Rebecca Milec, Faculty of Science Communications and Marketing) **Conducting Good Research**	Oct. 25	Certificate of Academic Engagement Due
	Oct. 31	**No Class** **Video Progress Report Due**	Nov. 1	**[CEL Progress Meeting #2]**
8	Nov. 7	**Equity, Diversity, and Inclusion in our Scientific Community** **Indigenous Ways of Knowing** *Pre-readings on OWL **Scientific Misconception Video Presentations**	Nov. 8	
9	Nov. 14	*** Scientific Research Ethics** (Guest: Trevor Bieber, Research Ethics Officer, Western University) **Ethical Dilemmas**	Nov. 15	
10	Nov. 21	**Communicating your Science Skills: Resume, CV, & Reference Letters** **Networking & Conference Communication** **[CEL Progress Meeting #3]**	Nov. 22	**[CEL Progress Meeting #3]**
11	Nov. 28	**CEL Presentations *Invite 1000Z class** **Mentorship Wrap-Up**	Nov. 29	**Mentorship Infographic** Due
12	Dec. 5	**No Class** **Technical Executive Report Due**	Dec. 6	**CEL Reflection #2 Due**

Work is due by 11:55 pm on OWL

6. Evaluation

Your grade for this course will be calculated according to the components below. Note that this course consists of multiple assessment components; it is essential that you *plan ahead* and do *not* leave everything until the end of the course!

Assessment	Due Date	Weight
Community Engaged Learning (CEL) Project		55%
Progress Interviews (3 meetings)	Oct. 3/4; Nov. 1; Nov 21/22	5%
Reflections (2 submissions)	Oct. 11; Dec. 6	15%
Team Presentation*	Nov. 28	10%
Community Partner's Evaluation*	[Dec. 6]	10%
Technical Executive Report*	Dec. 5	15%
Scientific Impact, Communication, & Mentorship		45%
Engagement	Throughout term (includes Certificate of Academic Engagement for 1%, due Oct. 25)	10%
Mentorship Infographic	Nov. 29	10%
Scientific Misconception Video	Nov. 7 (Progress meeting: Oct. 10) (Progress report: Oct. 31)	25%

Community Engaged Learning Project

Students will be assigned to a Community Engaged Learning (CEL) Project in small teams of approximately 4 students, based on their submitted preferences. You will learn about these CEL projects and submit your preferences during the first week of the course. Your work and experience on this project will be assessed through the following deliverables:

Progress Interviews

Your CEL team will meet with an instructor for three progress interviews during tutorial times throughout the term. Meeting times will be scheduled with each group and all members must be present (unless alternative arrangements are made in advance with an instructor). Progress will be graded based on completion of these requirements:

CEL Meeting #1

- Discuss team communication plan, roles, project scope, and project goals
- Explain initial efforts on project

CEL Meeting #2

- Discuss project highlights and challenges
- Identify ≥5 credible sources related to the integrated science of your project
- Identify 3-6 possible sub-headings for your final report

CEL Meeting #3

- Discuss project highlights and challenges
- Identify ≥8 credible sources related to the integrated of your project
- Discuss the progress for each of the sub-sections of your report
- Discuss your collaboration plans thus far on your report
- Describe in detail your plan to complete your report by the due date
- Explain whether or not you plan to include your CEL deliverable as an appendix with your submission

Reflections

During the term you will have the opportunity to reflect upon your experience with this community engaged learning, considering your changing perspectives on your particular community and science issue, personal goals and values, and integration of your project and the course content. These reflections are *distinct* from your logbook entries, as these reflections are *deeper*, more *thoughtful* explorations into your learning experience. In these reflections, consider your perspectives on issues such as:

- social issues in which you are being immersed
- governing structures or policies that impact your project and/or target community
- diversity and/or inequalities in your target community
- barriers or challenges you see in our society
- your personal goals and how those goals are related to this CEL experience
- how your values and beliefs compare to your target community and how these may change
- how your project relates to in-class discussions
- leadership development
- how your experience could relate to a future career
- civic responsibility and political awareness
- your hopes and aspirations for the project

These individual reflections will be due earlier and later in the term. Each reflection should be approximately 600 words and submitted on OWL *Assignments*. Use the rubric on OWL to guide your reflection writing.

Presentation

Your classmates and instructors want to hear about and learn from your CEL experience! Each CEL team will deliver a 10-minute presentation on their project at the end of the term. A question and answer period will follow the presentations. As a group, please prepare some engaging slides to summarize your project's purpose, display your deliverables, and reflect on your learning experience during this project. Discuss the integrated science connections in your work. All members of the group should contribute to the delivery of this presentation. Use the rubric on OWL as a guide for your presentation preparation.

Community Partner's Evaluation

At the end of the term, your community partner will be asked to evaluate your group's contribution to the CEL project according to the rubric on OWL. A group grade will be provided, unless extenuating circumstances apply.

Technical Executive Report

Reports will be collaboratively written and focus on the **integrated science** of your project, along with your **project purpose and deliverables**. Summarize the key **scientific issues** and background information that form the basis for your project, as well as **your contributions/discoveries** on this issue. Your report should be written in a *Science* magazine style and be informative, engaging, use technical (but not specialist) vocabulary, and be illustrated with good quality photos or figures. Refer to the grading rubric on OWL. Your submission must include these items:

- Press Release (300-450 words, following the press release workshop guidelines)
- Science-style report (1700-2000 words, not including references), including:
    - Title, author names, community partner name
    - Relevant sub-headings
    - Discussion of the **integrated science** around your project and project purpose, potential impact, and deliverables
    - Support by references (≥8 credible sources) and images/figures with captions (2-5 images/figures)
- *If permitted by your CEL partner and appropriate for your project*, include your CEL deliverable as an appendix with your submission.

Scientific Impact, Communication, & Mentorship

The remaining portion of this course will explore scientific misconceptions in the community, scientific communication to the community, the impact of science on the community, and mentorship within the Western community.

Engagement

Engaging in the class discussions and workshops will support your training and development in scientific communication and mentorship. This portion will be assessed through your engagement submissions and involvement in classes and workshops (9%) as well as submission of your Certificate of Academic Engagement (1% for completion).

Mentorship Infographic

Students in this course will mentor first-year integrated science students to promote belonging in science, learning in science, and thriving in university. As mentors, you will be trained in resources available on campus to support students, learning strategies, and communication mechanisms through a variety of workshops and discussions. Your role will involve applying this training, along with your own experiences, to enhance the scientific community at Western university. Mentors will be paired with their mentees (typically enrolled in INTEGSCI 1000Z) after a kick-off event in September. Mentors will then communicate with their mentees throughout the term based on initiatives created by students in this course. Mentors are expected to formally connect with their mentees a minimum of three times during the term.

You will be assessed on this mentorship component by describing and reflecting upon your mentorship through an infographic-style submission at the end of the term. This infographic should synthesize details on when you communicated with your mentee(s), general topics of discussion, meaningful activities completed, your growth as a mentor through the training workshops and discussions, mentee feedback, and areas of growth for the future. Refer to the grading rubric on OWL.

Scientific Misconception Video

In groups, you will create a four-minute video for non-specialists based on the **integrated science** behind a contentious product, claim, or controversy in the community. Groups will be established during the first weeks of the term. In order to guide and support your progress on this major project, your group will engage in one progress interview with an instructor and submit one progress report during the term. Use the rubric on OWL to guide your video production.

#1. Video Progress Meeting (with instructor):

- Discuss your selected topic and scope of video
- Identify >3 credible sources for your video

#2. Progress Report (submit on OWL):

- Provide your references list for your video (≥8 references)
- Provide an outline or storyboard for your video
- Identify the remaining tasks and an action plan to complete your video by the date

Tips for Success

- Engage in classes each week
- Plan ahead, make a schedule, and thoughtfully prepare your submissions
- Make and attend regular meetings with your community partner, CEL group, and video group
- Consider using the designated tutorial sessions for group meeting times
- Communicate in a professional and timely manner with your community partner and groups
- Submit all your work early (or at least by the due date!)

If you find you are falling behind or encountering difficulties with a team, reach out to your instructors.

7. Missed Coursework

Students must familiarize themselves with the *University Policy on Academic Consideration – Undergraduate Students in First Entry Programs* posted on the Academic Calendar:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/academic_consideration_Sep24.pdf,

This policy does not apply to requests for Academic Consideration submitted for **attempted or completed work**, whether online or in person.

The policy also does not apply to students experiencing longer-term impacts on their academic responsibilities. These students should consult Accessible Education.

For procedures on how to submit Academic Consideration requests, please see the information posted on the Office of the Registrar's webpage: https://registrar.uwo.ca/academics/academic_considerations/

All requests for Academic Consideration must be made within **48 hours** after the assessment date or submission deadline.

All Academic Consideration requests must include supporting documentation; however, recognizing that formal documentation may not be available in some extenuating circumstances, the policy allows students to make **one** Academic Consideration request **without supporting documentation** in this course.

When a student *mistakenly* submits their one allowed Academic Consideration request **without supporting documentation** for assessments in the **Coursework with Assessment Flexibility** section below, the request cannot be recalled and reapplied. This privilege is forfeited.

Coursework with Assessment Flexibility and Deadline with a No-Late-Penalty Period

By policy, instructors may deny Academic Consideration requests for the assessments with built-in flexibility, as specified below. Academic consideration is not required (and will be denied) if the flexible and no-late-penalty period policies specified below already apply. Academic consideration is only required when specified below:

Team Submissions:

Community Partner Deliverables: Due to the nature of these projects, it is not possible to offer make-up opportunities or extensions, unless also agreeable to your community partners. Therefore, these components should take priority over other course components.

Team Presentation, Technical Executive Report, Scientific Misconception Video: Group work involves collaboration and reliance on each team member. Prioritize these group submissions/presentations. A 30% per day deduction applies to projects not submitted/presented on the due date. If extenuating circumstances exist for your team, discuss your situation in advance of the due date with your instructors. If an individual is unable to complete their work on a group submission by the due date, that individual may require academic consideration from their academic advisor to be eligible for a deduction-free extension *and* must notify their team and instructors as soon as possible to discuss their submission.

Individual Submissions:

Engagement: If you miss a class (and thus miss out on the in-class engagement submission), you must review the posted course materials/peer seminar notes and submit the engagement submission **within 48 h** of the missed class (no academic consideration is required). If no engagement submission is received within 48-h, your score for this missed in-class engagement will be zero. If you miss **more than two** classes, contact the instructor, as academic consideration may be required for you to be eligible to submit the in-class engagement submission after more than two missed classes.

Reflections, Mentorship Infographic, Certificate of Academic Engagement: Students are expected to submit these assignments by the due date listed. Should extenuating circumstances arise, students do not need to request Academic Consideration and are permitted to submit their assignment up to **48 h** past the deadline without a late penalty. If extenuating circumstances apply on the deadline *and* extend beyond 48 h *after* the deadline, reach out to your instructor directly. Academic consideration may be required to extend your due date. Otherwise, a 30% per day late deduction applies.

8. Additional Statements

Religious Accommodation

When conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request an accommodation for their absence in writing to the course instructor and/or the Academic Advising office of their Faculty of Registration. This notice should be made as early as possible but not later than two weeks prior to the writing or the examination (or one week prior to the writing of the test).

Please visit the Diversity Calendars posted on our university's EDID website for the recognized religious holidays: https://www.edi.uwo.ca.

Accommodation Policies

Students with disabilities are encouraged to contact Accessible Education, which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at: https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic Accommodation_disabilities.pdf.

Academic Policies

The website for Registrar Services is https://www.registrar.uwo.ca/.

In accordance with policy,
https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf,

the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at their official university address is attended to in a timely manner.

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

Course assignments must be written in your own words. You may not submit a written assignment produced by generative AI. The reflection components in this course will only be meaningful if you are the one preparing these submissions. That said, you may use generative AI to assist or provide feedback on your work, such as providing edits to a paragraph, identifying relevant sources (that you check, of course), or animating a visual portion of your video, but your submitted work must be your ideas communicated in your own words.

Support Services

Please visit the Science & Basic Medical Sciences Academic Advising webpage for information on adding/dropping courses, academic considerations for absences, appeals, exam conflicts, and many other academic-related matters: https://www.uwo.ca/sci/counselling/.

Students who are in emotional/mental distress should refer to Mental Health@Western (https://uwo.ca/health/) for a complete list of options about how to obtain help.

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts at

https://www.uwo.ca/health/student_support/survivor_support/get-help.html.

To connect with a case manager or set up an appointment, please contact support@uwo.ca.

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Accessible Education at http://academicsupport.uwo.ca/accessible_education/index.html

if you have any questions regarding accommodations.

Learning-skills counsellors at Learning Development and Success (https://learning.uwo.ca) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Western University is committed to a thriving campus as we deliver our courses in the mixed model of both virtual and face-to-face formats. We encourage you to check out the Digital Student Experience website to manage your academics and well-being: https://www.uwo.ca/se/digital/.

Additional student-run support services are offered by the USC, https://westernusc.ca/services/.

9. Equity, Diversity & Inclusion

Western is committed to the values of equity, diversity, and inclusion. In this class, we will try to highlight the accomplishments of a diverse group of scientists, and acknowledge that there may be historical biases in the scientific theories due to the lens it was written. Integrating a diverse set of experiences is needed for a more comprehensive understanding of science.

Furthermore, we strive to create a positive, welcoming learning environment for everyone that supports equity, diversity, and inclusion. Please let us know if you any suggestions to help achieve a more inclusive classroom.