

We recognize and acknowledge that McMaster University meets and learns on the traditional territories of the Mississauga and Haudenosaunee nations, and within the lands protected by the "[Dish With One Spoon](#)" wampum, an agreement amongst all allied Nations to peacefully share and care for the resources around the Great Lakes.

## LIFESCI 4C12 – INDEPENDENT THESIS 2020 Fall Term

**Instructor:** Dr. Sunita Nadella | **E-mail:** [sisip@mcmaster.ca](mailto:sisip@mcmaster.ca) | **Location:** GSB 105

**Teaching Assistant:** TBD | **E-mail:** TBD

### COURSE DESCRIPTION

The course consists of a thesis component carried out under the supervision of a faculty member and in-class workshop conducted by the School of Interdisciplinary Science. An honours project or thesis can be an empirical research project or, more rarely, based on a systematic review. For an empirical project, the student develops a testable hypothesis and uses scientific procedures to collect data and evaluate the hypothesis. For a review project, the student integrates and evaluates existing evidence to offer new interpretations and hypotheses. At the end of this course, students will present the findings in a scholarly paper and defend their research findings to a faculty and peer audience at the annual Interdisciplinary Research Symposium.

### COURSE AND LEARNING OBJECTIVES

#### Learning Objectives

The objective of this course is to provide an independent research experience. By the end, students are expected to develop competencies in the areas of [1] depth of knowledge, [2] scientific methodology, and/or laboratory skills, [3] time management, [4] communication, and [5] professionalism.

To this end, students will:

1. Work closely with a supervisor to identify a research question and an experimental design
2. Create a timeline for the completion of a project from start to finish
3. Become knowledgeable about their area of research by in-depth readings of the literature
4. Learn about ethical practices in the collection and storage of data
5. Communicate the outcome of their research project effectively and clearly
6. Engage with peers, supervisor, and course coordinator in a professional manner.

#### Class Activities

- **Meetings:** Please refer to MOSAIC for the meeting schedule.
- Online meetings will be held via Microsoft Teams.
- The meetings will be a mix of mandatory sessions and optional asynchronous modules

### COURSE WORKSHOPS

The in-class workshop is designed to help students develop a variety of skills and techniques needed for the preparation of their research projects.

The goal of the weekly workshops is to:

- Provide a cohort experience to likeminded students in the Life Sciences Program
- Provide a venue for the Course Coordinator to provide guidance and support for graduate school applications. and to ensure students are on track.
- Provide an opportunity for students to practice oral presentation skills
- Help students set realistic goals and expectations

### ***Office Hours***

- Please email Dr. Nadella ([sisip@mcmaster.ca](mailto:sisip@mcmaster.ca)) to arrange a virtual meeting.

## **MATERIALS & FEES**

### **REQUIRED MATERIALS/ RESOURCES - NA**

## **VIRTUAL COURSE DELIVERY**

To follow and participate in virtual classes it is expected that you have reliable access to the following:

- A computer that meets performance requirements [found here](#).
- An internet connection that is fast enough to stream video.
- Computer accessories that enable class participation, such as a microphone, speakers and webcam when needed.

If you think that you will not be able to meet these requirements, please contact [uts@mcmaster.ca](mailto:uts@mcmaster.ca) as soon as you can. Please visit the [Technology Resources for Students page](#) for detailed requirements. If you use assistive technology or believe that our platforms might be a barrier to participating, please contact [Student Accessibility Services, sas@mcmaster.ca](mailto:sas@mcmaster.ca), for support.

### ***E-Meeting Schedule***

**These will be virtual meetings on Microsoft Teams.** At certain points in the course it may make good sense to modify the schedule and deadlines in the course outline. The instructor reserves the right to modify elements of the course and will notify students accordingly (through announcements on Avenue).

A preliminary schedule for the fall term will be provided at the start of the term and will include Lectures (guidelines for course deliverables), Student presentations (to track course milestones) and some optional asynchronous modules and interactive sessions.

### ***E-Meeting Participation and Engagement***

Class participation and engagement is an important component of this course (and of active learning). Therefore, it is expected that all students will be ‘active’ participants during e-meetings. This means attending all classes, being actively involved in class activities and thoughtful discussion, and completing all assignments.

## COURSE OVERVIEW AND ASSESSMENT

### Evaluation

\*\*\*Note that Research Supervisors can modify components of the suggested assessment plan as suitable for the project. Please provide justification for change in the space provided for such components. Any modifications of the suggested mark breakdown must be discussed and approved by the Supervisor, student and Course Coordinator. Presentation at the Symposium and a written thesis are mandatory components.

Graded By	Timelines	Assessment	Weight (%)	Modified Weight and Justification
Course Coordinator	Ongoing	<u>Presentation:</u> <ol style="list-style-type: none"> <li>1. Research Proposals</li> <li>2. Research Update</li> <li>3. Data Presentations</li> </ol>	10	
	Ongoing	<u>Reflections:</u> <ol style="list-style-type: none"> <li>1. Professional goals and competencies in research</li> <li>2. Professional networks; collaboration; research careers</li> </ol>	10	
Research Supervisor	September 18	<u>Project plans; goals and objectives.</u> A document outlining realistic goals for the project objectives, assignments for grade allocation, timelines meeting times and dates, assignment due dates, a list of topics with assigned readings. After assessment supervisor may suggest relevant changes and once agreed upon this document will provide the template for project planning and evaluation by both student and supervisor.	Highly Recommended	
	October 20	<u>Literature Review</u> Students will review peer reviewed literature in the field and identify data gaps. Students should ask the supervisor for the preferred format and content to be included. Any problems with the project and suggested remedies should be communicated to the student by the supervisor at this time.	10	
	January 5	<u>Mid-Year Report:</u> Students should consult the supervisor for the preferred format and content to be included. Problems/conflicts identified at this time that cannot be resolved should be communicated in writing to the Life Sciences Coordinator ( <a href="mailto:sisip@mcmaster.ca">sisip@mcmaster.ca</a> ) by the student or the supervisor.	5	
	Mid-March	<u>Completion of Laboratory / field experimentation (if applicable)/data collection:</u> Students should not be expected to perform further laboratory or field experimentation after this date and should instead focus on preparation of the final thesis/project submission.	NA	
	End of Term	<u>Project Performance.</u> The supervisor will assess the diligence/timeliness and engagement in the work completed by the student as part of the course.	20	
	March 23	<u>First Draft Submission:</u> First draft of the final report should be given to the supervisor to allow time for revisions to be made. The supervisor(s) should provide written (preferably) or oral comments to the student on the first draft in a timely manner.	10	
	April 9	<u>Final Project Report/Thesis:</u> A final written paper will be submitted to the supervisor in the desired format. <b>No extensions will be granted without penalty unless there is a written request, approved by the Course Coordinator. The supervisor must provide the Course</b>	20	

	<b>Coordinator detailed reasons for such an extension before an extension will be granted</b>		
Last week of term	<p><b>Formal Presentation:</b> It is mandatory for students to present their research findings at the Life Sciences Interdisciplinary Research Symposium*. Students should be prepared to answer questions from their supervisor and the audience. Project supervisors or a delegate are required to attend and grade the presentation. (Graded by supervisor/delegate and a panel of judges selected by The School of Interdisciplinary Science)</p>	15	
	<b><u>Custom Deliverable (if desired)</u></b>		
April 16	<p><b>Submission of Final Grade</b> The supervisor will submit the student's final grade to the Course Coordinator.</p> <p><b><u>This deadline is critical for graduating students. If grades are not submitted by this date a grade of F will be submitted</u></b></p>		

- Supervisors are asked to please provide timely feedback for each component to enable students achieve desired progress.

### REQUESTS FOR RELIEF FOR MISSED ACADEMIC TERM WORK

[McMaster Student Absence Form \(MSAF\)](#): In the event of an absence for medical or other reasons, students should review and follow the Academic Regulation in the Undergraduate Calendar “Requests for Relief for Missed Academic Term Work”.

#### ***Course Policy Regarding Missed Work***

**MSAF:** If you are absent from the university for a minor medical reason, lasting up to 3 calendar days, you may report your absence, once per term, without documentation, using the McMaster Student Absence Form (MSAF). Absences for a longer duration or for other reasons must be reported to your Faculty office, with documentation, and relief from term work may not necessarily be granted. When using the MSAF, report your absence to course instructor or designate. You must then contact the instructor/instructional assistant/other immediately (normally within 2 working days) by email. Please refer to the contact list on the first page of this outline for appropriate email addresses. The instructor/instructional assistant will indicate what relief may be granted for the work you have missed, and relevant details such as revised deadlines, or time and location of a make-up exam/quiz/test. Please note that the MSAF may not be used for final deliverables, nor can it be used for a final examination or its equivalent.

**\*\*\*IMPORTANT\*\*\*:** You must identify Sunita Nadella ([sisip@mcmaster.ca](mailto:sisip@mcmaster.ca)) as the contact on the MSAF form and immediately after using the online tool, students MUST contact Sunita Nadella at this email regarding the nature of the relief. Failure to do so may negate the opportunity for relief.

### ACADEMIC ACCOMMODATION OF STUDENTS WITH DISABILITIES

Students with disabilities who require academic accommodation must contact [Student Accessibility Services \(SAS\)](#) at 905-525-9140 ext. 28652 or [sas@mcmaster.ca](mailto:sas@mcmaster.ca) to make arrangements with a Program Coordinator. For further information, consult McMaster University’s [Academic Accommodation of Students with Disabilities](#) policy.

## **Inclusive Learning**

McMaster University aims to foster a supportive and inclusive learning environment that encourages both individual and collective growth. Students are invited to speak with the Instructor immediately if you encounter any challenges related to accessing or using the technological requirements expected for successful participation in this course.

**Inclusivity and Accommodations:** Students are required to register with Student Accessibility Services (SAS) first (<https://sas.mcmaster.ca/>). Any student who then wishes to invoke an accommodation for any aspect(s) of this course must contact the Instructor at the beginning of the semester to discuss how the accommodations detailed in their SAS letter will be fulfilled in this course. Please access McMaster University's Academic Accommodation of Students with Disabilities policy here: <https://secretariat.mcmaster.ca/app/uploads/Academic-Accommodations-Policy.pdf>

## **ACADEMIC ACCOMMODATION FOR RELIGIOUS, INDIGENOUS OR SPIRITUAL OBSERVANCES (RISO)**

Students requiring academic accommodation based on religious, indigenous or spiritual observances should follow the procedures set out in the [RISO](#) policy. Students should submit their request to their Faculty Office ***normally within 10 working days*** of the beginning of term in which they anticipate a need for accommodation or to the Registrar's Office prior to their examinations. Students should also contact their instructors as soon as possible to make alternative arrangements for classes, assignments, and tests.

## **COURSES WITH AN ON-LINE ELEMENT**

In this course we will be using [Avenue to Learn and Microsoft Teams](#). Students should be aware that, when they access the electronic components of a course using these elements, private information such as first and last names, user names 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 a course that uses on-line elements will be deemed consent to this disclosure. If you have any questions or concerns about such disclosure, please discuss this with the Instructor.

## **ONLINE PROCTORING**

Some courses may use online proctoring software for tests and exams. This software may require students to turn on their video camera, present identification, monitor and record their computer activities, and/or lock/restrict their browser or other applications/software during tests or exams. This software may be required to be installed before the test/exam begins.

## **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.

**It is your responsibility to understand what constitutes academic dishonesty.**

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. For information on the various types of academic dishonesty please refer to the [Academic Integrity Policy](#), located at <https://secretariat.mcmaster.ca/university-policies-procedures-guidelines/>

**The following illustrates only three forms of academic dishonesty:**

- plagiarism, e.g. the submission of work that is not one's own or for which other credit has been obtained.
- improper collaboration in group work.
- copying or using unauthorized aids in tests and examinations.

All students are reminded of the importance of academic integrity, and the serious consequences of academic dishonesty.

### **AUTHENTICITY / PLAGIARISM DETECTION**

In this course, we will be using a web-based service (Turnitin.com) to reveal authenticity and ownership of student submitted work. For courses using such software, students will be expected to submit their work electronically either directly to Turnitin.com or via an online learning platform (e.g. A2L, etc.) using plagiarism detection (a service supported by Turnitin.com) so it can be checked for academic dishonesty.

Students who do not wish their work to be submitted through the plagiarism detection software must inform the Instructor before the assignment is due. No penalty will be assigned to a student who does not submit work to the plagiarism detection software. **All submitted work is subject to normal verification that standards of academic integrity have been upheld** (e.g., on-line search, other software, etc.). For more details about McMaster's use of Turnitin.com please go to [www.mcmaster.ca/academicintegrity](http://www.mcmaster.ca/academicintegrity).

### ***Senate Student Policies***

Students can view full policies [here](#). Senate Policy Statements are also available from the Senate Secretariat Office, Room 104, and Gilmour Hall.

### **CONDUCT EXPECTATIONS**

As a McMaster student, you have the right to experience, and the responsibility to demonstrate, respectful and dignified interactions within all our living, learning and working communities. These expectations are described in the [Code of Student Rights & Responsibilities \(the "Code"\)](#). All students share the responsibility of maintaining a positive environment for the academic and personal growth of all McMaster community members, **whether in person or online**.

It is essential that students be mindful of their interactions online, as the Code remains in effect in virtual learning environments. The Code applies to any interactions that adversely affect, disrupt, or interfere with reasonable participation in University activities. Student disruptions or behaviours that interfere with university functions on online platforms (e.g. use of Avenue 2 Learn, WebEx or Zoom for delivery), will be taken very seriously and will be investigated. Outcomes may include restriction or removal of the involved students' access to these platforms.

### ***Student Code of Conduct***

You acknowledge that your behavior in all aspects of this course should meet the standards of the McMaster University Student Code of Conduct. You understand that any inappropriate behavior directed against any of your colleagues, teaching assistants, or the instructional team will not be tolerated. Disruptive behavior during any session (e.g. lecture, seminar, lab, tutorial) will also not be tolerated. Abuse, ridicule, slander, inappropriate language, and discrimination towards instructors teaching staff, teaching assistants and other students will not be tolerated in any capacity. Shared spaces including e-spaces such as the Avenue to Learn course discussion board are to be considered inclusive and safe.

## ***Inclusivity and Academic Integrity***

The University values integrity, inclusiveness and teamwork, and strives to support the personal and collective growth of the McMaster student community. **These values are foundational to ensuring campus environments – both in-person and virtual – are conducive to personal wellbeing and academic success.**

## ***Communication between Students and Faculty***

The University's official method of correspondence with students is through a valid McMaster University e-mail account. It is the student's responsibility to keep their @mcmaster.ca account active and check it on a regular basis. All emails from students must include your full name and course code. All emails will be replied to within 48-72 hours.

## ***Checking your Grades***

All grade concerns and discrepancies must be reported to Sunita Nadella ([sisip@mcmaster.ca](mailto:sisip@mcmaster.ca)) within a week of receiving the grade.

Your marks will be recorded on Avenue. It is your responsibility to check that all grades entered into Avenue are recorded properly. You must notify your instructor about any errors with regards to how your mark was entered. You have until 48 hours prior to the final exam to discuss any Avenue mark issues.

Students are required to submit a formal regrade application to the Office of Associate Dean in the event of a disagreement about the Final Assigned Grade. The Director, School of Interdisciplinary Science will then appoint an external examiner to verify/regrade the components of the course as appropriate. We strongly recommend students to refrain from contacting supervisors either in person or via email for grade changes once Final Grades have been assigned.

## ***Re-Mark Policy***

Any marked term work may be submitted for re-grading within 5 business days of the work being returned to the student. If you wish to appeal a grade, you must submit to the instructor a written note justifying why you wish to have the assignment remarked, with the assignment attached. If the instructor considers the written justification to be insufficient (e.g. simply wanting a higher grade is insufficient), the assignment will not be re-graded. If the justification is considered sufficient, the entire assignment will be re-graded. You must therefore understand that your mark can increase or decrease.

## ***Student Responsibilities***

To get the most out of the course, you must be prepared to:

- attend all sessions, make up all missed work, and provide documentation for authorized absences
- interact frequently with faculty, students, TAs, and other support staff
- plan and manage your own time
- complete preparatory tasks (such as reading, writing assignments, and initial research) in advance of sessions
- develop and use reflective learning skills (for example identifying learning objectives, planning and carrying out research tasks, acting on academic feedback)
- work as an effective, efficient, and responsive team member on group assignments
- follow all the guidelines as outlined in the course instructional documents and manuals
- check the course Avenue to Learn site, and your McMaster and Avenue e-mail daily for updates
- follow all university policies and guidelines, and in all ways be a responsible university member

## COPYRIGHT AND RECORDING

Students are advised that lectures, demonstrations, performances, and any other course material provided by an instructor include copyright protected works. The Copyright Act and copyright law protect every original literary, dramatic, musical and artistic work, **including lectures** by University instructors.

The recording of lectures, tutorials, or other methods of instruction may occur during a course. Recording may be done by either the instructor for the purpose of authorized distribution, or by a student for the purpose of personal study. Students should be aware that their voice and/or image may be recorded by others during the class. Please speak with the instructor if this is a concern for you.

### ***Additional Copyright Information***

In this course students will have access to material that is subject to copyright laws. This includes (but is not limited to) textbooks and all resources developed by the Instructor such as lab manuals, demonstration videos, quizzes, assignments, tests, class notes and class slides. Students are not allowed to share or redistribute this material in any printed or electronic form without the explicit written consent of the copyright holder. This includes posting any course material on Internet bulletin boards, course repositories, social networks, etc.

## RESEARCH ETHICS - NA

## EXTREME CIRCUMSTANCES

The University reserves the right to change the dates and deadlines for any or all courses in extreme circumstances (e.g., severe weather, labour disruptions, etc.). Changes will be communicated through regular McMaster communication channels, such as McMaster Daily News, A2L and/or McMaster email.

It is the responsibility of the student to check their McMaster email and course websites weekly during the term and to note any changes.