



Chemistry

UNIVERSITY OF TORONTO

PHC 301H1/PHM140H1: Molecular Pharmacology 2

Winter 2024 Course Syllabus

I TEACHING TEAM

INSTRUCTOR/COURSE COORDINATOR

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INSTRUCTOR

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INSTRUCTOR

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II COURSE OVERVIEW

COURSE DESCRIPTION:

Many drugs act via the receptors and other proteins that mediate signalling within and between cells. Although there are more than 1,000 such proteins, they can be grouped into a handful of families on the basis of their structural and functional similarities. Each family will be examined at the molecular level from a pharmacological, biochemical and biophysical point of view with specific members taken as representative examples. Of particular interest will be their structure, their mechanism of action, their modulation by drugs and the underlying dysfunctions toward which the drugs are directed. Basic principles of molecular pharmacology are introduced as a tool for decoding the relationship between dose and response, with an emphasis on the nature of concepts such as affinity, allostery, intrinsic activity and efficacy.

STUDENT LEARNING OUTCOMES:

On successful completion of this course, students will be able to:

- Apply molecular pharmacology principles to understand drug interactions, dose responses, and other properties.
- Demonstrate understanding of the role and function of major signalling pathways.
- Demonstrate understanding of how various classes of drugs interact with specific targets in major signalling pathways and exert their effects.
- Appreciate how disease states can manifest and how pharmacological treatments attempt to resolve them.

The course will emphasise principles and understanding. Concepts and broad themes are described in molecular terms and presented in the context of key observations taken from the scientific literature. The intent is not only to introduce the “facts”, such as they are, but also to impart an appreciation of the scientific process and the nature of the information that constitutes the basis of present knowledge. Limits to current understanding, uncertainty over the interpretation of data, and alternative hypotheses are pointed out from time to time in an effort to encourage a critical approach to the subject. A primary aim is to foster a conceptual grasp that will outlive the specific and perhaps transient details of today and assist in understanding those of tomorrow.

PREREQUISITE COURSE(S):

(CHM135H1, CHM136H1) / (CHM138H1, CHM139H1) / CHM151Y1; CHM220H1 / CHM222H1; BCH210H1)

This course assumes you have a basic understanding of physical and biochemical principles presented in CHM220H1: Physical Chemistry for Life Sciences, CHM222H1: Introduction to Physical Chemistry and BCH210H: Biochemistry I Proteins, Lipids and Metabolism.

SUGGESTED READINGS:

Material presented in the course is drawn from a variety of sources at the discretion of each lecturer, and the handouts are the best guide to content, nature and scope. For further reading, students are directed to sources recommended by the lecturers and to the monographs listed below. All of the latter are available in printed form from the University of Toronto Library. Those identified by an asterisk (*) also are available on-line. Those without an asterisk may be available on-line in an earlier edition.

The books identified as textbooks are comprehensive in nature and contain at least some material on most of the topics covered in the course. The others are more focussed and can be very enlightening in particular areas.

Textbooks:

Berg, J. M., Tymoczko, J. L., Gatto, G. L. and Stryer, L., *Biochemistry, 9th Edition*, W. H. Freeman and Company, New York, 2019.

Brunton, L. L., Knollman, B. C. and Hilal-Dandan, R. (editors), *Goodman and Gilman's The Pharmacological Basis of Therapeutics, 13th Edition*, McGraw-Hill, New York, 2018. (*)

Kalant, H., Grant, D. M. and Mitchell, J. A. (editors), *Principles of Medical Pharmacology, 7th Edition*, Saunders Elsevier, Toronto, 2007.

Lodish, H., Berk, A., Kaiser, C. A., Krieger, M., Bretscher, A., Ploegh, H., Amon, A. and Martin, K. C., *Molecular Cell Biology, 8th Edition*, W. H. Freeman and Company, New York, 2016.

Other sources:

Ehlert, F. J., *Affinity and Efficacy. The Components of Drug-Receptor Interactions*, World Scientific, Hackensack, 2015. (*)

Foreman, J. C., Johansen, T. and Gibb A. J. (editors), *Textbook of Receptor Pharmacology, 3rd Edition*, CRC Press, Boca Raton, 2011.

Kenakin, T., *Molecular Pharmacology. A Short Course*, Blackwell, Oxford, 1997.

Kenakin, T. P., *Pharmacologic Analysis of Drug-Receptor Interaction, 3rd Edition*, Lippincott-Raven, Philadelphia, 1997.

Kenakin, T., *A Pharmacology Primer: Theory, Application, and Methods*, Elsevier Academic Press, Amsterdam, 2004. (*)

Zheng, J. and Trudeau, M. C. (editors) *Handbook of Ion Channels*, CRC Press, Boca Raton, 2015. (*)

Molleman, A., *Patch Clamping: An Introductory Guide to Patch Clamp Electrophysiology*, Wiley, Chichester, 2003. (*)

Weinberg, R. A., *The Biology of Cancer*, Garland Science, New York, 2006.

III COURSE ORGANIZATION

Lectures and Scheduled Tutorials					
<i>Time</i>	<i>Mon. (1–2)</i>	<i>Tue. (9–10)</i>	<i>Tue. (10–11)</i>	<i>Wed. (12–1)</i>	
Location	PB B150	PB B150	PB B150	PB B150	
D. S. Redka	08	09	09	10	January
	15	16*	16	17	January
	22	23*	23	24	January
	29	30*	30	31	January
	05	06*	06		February
C. L. Cummins				07	February
	12	13	13	14	February
Reading Week					February
D. Rodriguez	No class	27: 1st Mid-Term Exam		28	February
	04	05	05	06	March
	11	12	12	13	March
	18		19		March
D. S. Redka				20	March
	25	26: 2nd Mid-Term Exam		27	March
	01	02	02	03	April
*Tutorials held in conjunction with the lectures. The class is divided into five sections that meet separately, as described elsewhere.					
One additional tutorial, not shown above, will take place on February 9th at 4 pm see course website.					

DELIVERY OF LECTURES AND TUTORIALS

Lectures and tutorials will take place in person, unless otherwise announced. In person lectures will not be streamed live online, unless otherwise announced. Under special circumstances, including but not limited to changes in the regulations from the University of Toronto or the Leslie Dan of Pharmacy for reasons of public health, pandemic-related restrictions, etc, lectures may temporarily take place online via Zoom. The University of Toronto no longer requires that the video recordings are available online, therefore availability of such recordings will be made solely up to the discretion of each individual instructor.

Recordings

This course, including any questions or comments from students, may be recorded on video. Course videos and materials belong to your instructor, the University, and/or other source depending on the specific facts of each situation, and they are protected by copyright. Sessional videos and other materials in this course are provided for your own academic use. You must not copy, share or use them for any other purpose without the explicit permission of the instructor.

For questions about recording and use of videos in which you appear please contact your instructor.

TUTORIAL OBJECTIVES:

Questions from previous examinations and issues related to the lectures presented by D. Redka from January 8–February 6 will be discussed at weekly tutorials scheduled for 9:10 am on Tuesdays between 16th January and February 6th. That period otherwise will be available for unscheduled tutorials or used for lectures, as shown in the schedule of lectures. The class will be divided into five sections, which will meet in separately (location to be announced). You must attend tutorials in the session to which you have been assigned.

IV EVALUATION/GRADING SCHEME

OVERVIEW:

Term Tests (x2):	49%
Final Exam:	51%

The arrangements described below are essentially the same for students enrolled in the Leslie Dan Faculty of Pharmacy (PHM140H1) and for those enrolled in the Faculty of Arts and Science (PHC301H1) except for policies related to petitions and failed courses. The term “examination” can be read throughout as “assessment” by students in PHC301H1.

The grade for the year will be based upon two mid-term examinations and a final examination. Questions on the mid-term examination will be drawn exclusively from material covered during the periods shown below. The final examination is comprehensive and will be based upon material covered throughout the year, weighted as described below.

ASSESSMENT DATES & MARK BREAKDOWN:

1st Mid-term examination (2 hr)

Material:	8th January to 6th February (15 lectures)
Lecturer:	D. S. Redka

Date: 8:45-10:45 am, 27th February 2024
Location: EX-100
Weight: Overall, 24%; *i.e.*, 60 x 15/38

2nd Mid-term examination (2 hr)

Material: 7th February to 19th March (16 lectures)
Lecturers: C. Cummins and D. Rodriguez
Date: 8:45-10:45 am, 26th March 2024
Location: EX-100
Weight: Overall, 25%; *i.e.*, 60 x 16/38
C. Cummins: 60 x 5 /38 = 8% (31 %)
D. Rodriguez: 60 x 11/38 = 17% (69 %)
Total: 60 x 16/38 = 25% (100 %)

Final examination (2.5 hr)

Material: All (8th January – April 3rd, 2024)
Lecturers: All lecturers
Date: On or about 25th April 2024
Weight: Overall, 51%; *i.e.*,
D. Redka (*part 1*): 40 x 15/38 = 15.7% (30.9%)
C. Cummins: 40 x 5/38 = 5.3%(10.3%)
D. Rodriguez: 40 x 11/38 = 11.6% (22.7%)
D. Redka (*part 2*): (40 + 60) x 7/38 = 18.4% (36.1%)
Total = 51.0% (100.0%)

WEIGHTING

The weighting of marks is based upon the number of lecture-hours and the notion of a 60/40 split between the mid-term examinations and the final examination. There will be no mid-term examination on the last 7 lectures; rather, that material will be covered only on the final examination and weighted accordingly as shown above. The final examination therefore will account for 51% of the overall grade rather than 40%, with the extra 11% reflecting the mid-term component of the last 7 lectures.

IMPORTANT: if an unexpected technical issue occurs with a university system (e.g., Quercus services, network outage) that affects availability or functionality, it may be necessary to revise the timing or weighting of the term tests.

V COURSE POLICIES

INCOMPLETE EXAMINATIONS

A student who begins but does not complete an examination will be deemed to have been present. The examination will be graded, and the mark will contribute to the final grade in the manner described above. There will be no opportunity to re-write the examination. It is each student's responsibility to make appropriate decisions regarding his or her fitness to attend and to complete an examination.

ABSENCE FROM EXAMINATIONS

Petitions

To receive consideration for any absence, a student must submit a petition and appropriate documentation as follows: for PHM140H1, to the Registrar of the Leslie Dan Faculty of Pharmacy (i.e., Gustavo Luna, g.luna@utoronto.ca, 416-978-2931); for PHC 301H1, to the course coordinator (i.e., D. Redka, dasha.pylypenko@utoronto.ca, 416-910-9906). Please consult the calendar of the Leslie Dan Faculty of Pharmacy (PHM140H1) or the Faculty of Arts and Science (PHC301H1) for further details.

If a petition has not been filed and approved, the absentee will receive a grade of zero for the missed examination. If a petition has been filed and approved, the absentee's grade will be determined as described below.

Absence from Mid-term Examinations

Should a student miss one of the mid-term examinations, the mark on each section will be taken as that obtained on the corresponding section of the final examination. The effect therefore is to increase the overall weight of the final examination. If the first mid-term examination is missed, the final examination will account, in effect, for 75% of the overall grade for the year. If the second mid-term examination is missed, the final examination will account for 76% of the overall grade for the year.

Should a student miss both of the mid-term examinations, the mark on each section will be taken as that obtained on the corresponding section of a make-up (PHM140H1) or deferred (PCH301H1) examination (time to be determined by the Registrar's office). In the interim, the grade will be shown on ACORN as DNW (PHM140H1) or SDF (PHC301H1).

Absence from the Final Examination

A student who misses the final examination may apply to take a make-up or deferred examination to be held in the summer as described below. Eligibility will be determined according to the policy of the Leslie Dan Faculty of Pharmacy or the Faculty of Arts and Science for missed examinations.

To obtain an overall grade for the course, the mark from the make-up or deferred examination will be used in lieu of that from the final examination and combined with the mid-term marks in the manner described above.

Pending the outcome of the make-up or deferred examination, the grade will be shown on ACORN as DNW (PHM140H1) or SDF (PHC301H1).

PASSING GRADE

PHM140H1

A student is required to obtain an overall grade of at least 60% to pass the course. Students who do not pass may be eligible to take a supplemental examination, as determined according to the policies of the Leslie Dan Faculty of Pharmacy. The supplemental examination will be held in the summer as described below. A student who fails to obtain a grade of at least 60% on the supplemental examination is deemed to have failed the course.

PHC301H1

A student is required to obtain an overall grade of at least 50% to pass the course. Students who do not pass are required to repeat the course.

SUPPLEMENTAL, MAKE-UP AND DEFERRED EXAMINATIONS

A single examination will serve as the supplemental examination in PHM140H1, the make-up examination in PHM140H1 and the deferred examination in PHC301H1. It will be held during the period selected for supplemental examinations in the Leslie Dan Faculty of Pharmacy, typically in mid-summer. The questions will be drawn from all sections of the course.

Individual sections of the examination may be written or oral, as determined by the course coordinator in consultation with the individual lecturers. Decisions regarding the format will be made during the month or so preceding the examination.

The allocation of marks among the different sections is described below. Note that it differs from that on the final examination.

Supplemental Examination in PHM140H1

Students will answer all sections of the supplemental examination. Marks will be allocated among the different sections in direct proportion to the number of lecture-hours (*i.e.*, D. Redka (*part 2*), 18.4%; D. Rodriguez, 28.9%; C. Cummins, 13.2%; D. Redka (*part 1*), 39.5%).

Make-up Examination in PHM140H and Deferred Examination in PHC301H

Students who were absent from the final examination will answer all sections of the make-up or deferred examination. Marks will be allocated among the different sections in direct proportion to the number of lecture-hours (*i.e.*, D. Redka (*part 2*), 18.4%; D. Rodriguez, 28.9%; C. Cummins, 13.2%; D. Redka (*part 1*), 39.5%), and the grade will be used in lieu of that from the final examination to determine the overall grade for the year as described above.

Students who were absent from both of the mid-term examinations will answer only the corresponding sections of the make-up or deferred examination. The marks will be incorporated into the grade for the year as described above.

There will be only one make-up or deferred examination. Should a student miss that examination, the next opportunity will be the final examination at the end of the next academic year. In that event, the student will be held responsible for any changes in the content of the course during the intervening year. Eligibility to write such an examination will be determined according to the policies of the Leslie Dan Faculty of Pharmacy for missed examinations.

Students enrolled in PHC301H1 are asked to note that the deferred examination will be administered by the Leslie Dan Faculty of Pharmacy. It therefore will be held during the period selected for supplemental and make-up examinations in the Leslie Dan Faculty of Pharmacy, which will be in the summer as described above. This is not necessarily the same as the period for deferred examinations in the Faculty of Arts and Science. Students in the last year of their programme ought to note that a deferred examination in PHC301H1 may delay their graduation.

REVIEWING EXAMINATIONS

Mid-term Examinations

Students may review what they wrote on the first mid-term examination by contacting the teaching assistant for their tutorial section. Students may review what they wrote on the second mid-term examination by contacting the teaching assistant who graded the papers. Requests for

reviews must be made within a period of four months from the date of the examination. Changes to the grade will be considered according to a procedure that will depend upon whether the request for a change takes place before or after the time of the final examination.

Requests for changes that are made prior to the final examination may be directed to the relevant teaching assistant, who will discuss the matter with the student and make appropriate adjustments to the grade. Disagreements that cannot be resolved between the two parties will be decided by the lecturer at his or her sole discretion.

Requests for changes that are made after the final examination are directed either to the teaching assistant or to the course coordinator, depending upon the nature of the change. Requests related to technical errors such as an unmarked answer or an error of addition may be directed to the teaching assistant, who will adjust the grade as required. No other change will be considered at that time; rather, the student may contact the course coordinator and request that the entire examination be re-graded. In that event, the mark on any question may increase, decrease or remain the same.

Final Examination

Reviews of the final examination in PHM140H1 are conducted as described in the calendar of the Leslie Dan Faculty of Pharmacy. Corrections of technical errors such as an unmarked answer or an error of addition will be made as required. For any other change, the student may request that the entire examination be re-graded, and the mark on any question may increase, decrease or remain the same.

Reviews of the final examination in PHC301H1 are conducted as described in the calendar of the Faculty of Arts and Science.

ONLINE EXAMINATIONS

As needed, it is expected that examinations could be conducted online via ProctorU in a timed and synchronous manner. More detailed information regarding the nature and format of the examination will be provided prior to the date.

Invigilation by ProctorU

One or more of the examinations may use invigilation provided by ProctorU, a fully online proctoring service that allows completion of the assessment from an off-campus location. Proctoring may be automated, or it may be performed by a highly trained human proctor. The decision to use ProctorU and related details will depend upon divisional policies and the requirements of the course. Students will be advised of the specific procedure prior to the examination.

The proctoring service includes the use of a webcam. ProctorU will record the session, and the recordings will be held for a limited period of time in order to ensure that academic integrity is maintained. The University of Toronto has an institutionally endorsed agreement with ProctorU that protects the privacy of the recordings and other personal information.

Students taking their examinations online must agree to be proctored by ProctorU, should it be deployed, throughout the duration of the examination. Students in PHC301H1 will be required to show their T-Card prior to beginning to write the examination. Students in PHM140H1 will be required to show their T-Card or valid government identification (*e.g.*, driver's licence, passport) prior to beginning to write the examination.

Technical requirements - Access to a computer that can support remote recording is your responsibility as a student. You will need to ensure that you can complete the examination using a reliable computer equipped with a webcam and a microphone, as well as a reliable, high-speed internet connection. To that end, you are required to test your equipment no later than one week before the examination. The test can be performed at

<https://go.proctoru.com/users/4287473/system-metrics/new>. Access to the site requires that you hold an account with ProctorU. Further details regarding the equipment can be found at <https://support.proctoru.com/hc/en-us/articles/115011772748-Equipment-Requirements>.

If you believe that you do not have the minimum requirements with respect to a computer and accessories, please contact either the Registrar of the Leslie Dan Faculty of Pharmacy (PHM140, g.luna@utoronto.ca, 416-978-2931) or the course coordinator (PHC301, dasha.pylypenko@utoronto.ca, 416-978-2716) as appropriate.

General process - Students first must confirm their identity by means of photo ID with the proctor, either automated or human. The proctor then closely monitors students and their immediate environment throughout the entire examination using webcams and remote desktop monitoring through high-speed internet connection.

All components of the proctoring must be maintained for the duration of the examination. Should any component be lost during the examination, such as would occur if the view from the camera became obstructed or if the remote desktop were to fail, the subsequent procedure will depend upon the nature of the proctor. A human proctor may contact the student during the examination through a pop-up message, voice or a loud beep, and the student is expected to respond. Failure to respond to the proctor and to allow the resumption of full proctoring threatens the integrity of the examination. An automated proctor will record the time and nature of the event for subsequent review but will not contact the student, who is expected to continue with the examination.

Non-compliance with examination protocols flagged by the proctor will be investigated to determine whether an academic offence has been committed as per the *Code of Behaviour on Academic Matters* promulgated by the Governing Council of the University of Toronto. At the completion of the examination, a report of student exam-taking behaviours is generated and reviewed by the instructor and IT staff. Grades will not be released to students until the integrity of the examination has been verified through ProctorU, the instructor(s) and other divisional staff as appropriate.

Privacy and security of information - The University of Toronto has an institutionally endorsed agreement with ProctorU that protects the privacy of the recordings and other personal information. However, because you will be video-recorded while writing the examination, please consider preparing the background to avoid displaying personal details which you would not want to be visible. Pictures or other items might be removed, for example, or you might move to a room which you are comfortable showing on camera. It is recommended that students using the services of ProctorU remove the Chrome or Firefox extension after completion of the examination.

Retention of video content - Recordings captured via the ProctorU system are available to the University and the instructor for sixty days after a recording is made. Recordings flagged for review will be archived for twelve months. After these time periods have passed, recordings will be purged.

VI TECHNOLOGY REQUIREMENTS

Minimum technical requirements for participation in courses delivered online have been identified by the Office of the Vice-Provost, University of Toronto. Details can be found at:

<https://www.vicprovoststudents.utoronto.ca/covid-19/tech-requirements-online-learning/>

This document lists several recommended accessories, including headphones, speakers, webcams, microphones, scanners and cameras. Headphones or speakers are essential for the lectures and tutorials in PHM 140H1/PHC 301H1. Other peripheral devices are not required, but that does not preclude their use should a student choose to do so. A microphone may be helpful, for example, when asking a question during a lecture or participating in a tutorial. The use of a webcam is similarly at the student's discretion. We appreciate that students may experience a range of circumstances that shape their ability or their decision to participate in course-related activities using video.

Troubleshooting

For general questions regarding technological issues, contact the Information Commons Help Desk (416-978-4357, help.desk@utoronto.ca). They are open evenings and weekends (<https://onereach.library.utoronto.ca/ic-faq-categories/about-and-hours-service>).

Technological issues related specifically to the course in molecular pharmacology may be directed to individual lecturers or the co-ordinator, as appropriate. Please provide as much information as possible, including a description of the problem, the time and date, the web browser and the device which you were using (*e.g.*, laptop or tablet etc.) and screen-shots of messages that identify the error.

VII INSTITUTIONAL POLICIES & SUPPORT

ACADEMIC INTEGRITY

Academic integrity is a fundamental value of learning and scholarship at the University of Toronto. Participating honestly, respectfully, responsibly and fairly in this academic community ensures that your University of Toronto degree is valued and respected as a true signifier of your individual academic achievement.

All suspected cases of academic dishonesty will be investigated following procedures outlined in the *Code of Behaviour on Academic Matters*. You are expected to be familiar with the contents of that document and to seek out additional information on academic integrity from other institutional resources such as the [University of Toronto website on Academic Integrity](#).

The *Code of Behaviour on Academic Matters* outlines the behaviours that constitute academic misconduct, the processes for addressing academic offences and the penalties that may be imposed. Potential offences include, but are not limited to:

- Looking at someone else's answers, or working together to answer questions;
- Letting someone else look at your answers;
- Asking for or soliciting help, in any manner whatsoever, from people other than the instructor (*e.g.*, through online tutoring platforms such as [chegg.com](http://www.chegg.com));
- Having synchronous or asynchronous discussions about the examination material through any means during the entire time-window of the examination (*e.g.*, phone, text messaging, discussion boards, etc);
- Misrepresenting your identity or having someone else complete your test or examination.

- Representing as your own any idea or expression of an idea or work of another (*i.e.*, plagiarism).

PLAGIARISM DETECTION

Assessments in PHM140H1/PHC301H1 do not normally require extended prose such might be found in reports or essays. Should such forms of assessment be employed, however, students normally will be required to submit their essays or other material to [Turnitin](#) for a review of textual similarity and detection of possible plagiarism. In doing so, students will allow their material to be included as source documents in the Turnitin reference database, where they will be used solely for the purpose of detecting plagiarism. The terms that apply to the University's use of the Turnitin service are described on the Turnitin web site.

COPYRIGHT

This course, including any questions or comments from students, will be recorded on video. The recordings will be available for remote viewing within Quercus after each session.

Course videos and materials belong to your instructor, the University, and/or other source depending on the specific facts of each situation, and they are protected by copyright. Sessional videos and other materials in this course are provided for your own academic use. You must not copy, share or use them for any other purpose without the explicit permission of the instructor.

For questions about recording and use of videos in which you appear please contact your instructor. More information regarding this is available here: <https://teaching.utoronto.ca/ed-tech/audio-video/copyright-considerations/>

EQUITY, DIVERSITY, INCLUSION & ACCESSIBILITY NEEDS

The University of Toronto is committed to equity, human rights and respect for diversity. All members of the learning environment in this course should strive to create an atmosphere of mutual respect where all members of our community can express themselves, engage with each other and respect one another's differences. The University of Toronto does not condone discrimination or harassment against any persons or communities.

The University provides academic accommodations for students with disabilities, in accordance with the terms of the Ontario Human Rights Code. This occurs through a collaborative process that acknowledges a collective obligation to develop an accessible learning environment that both meets the needs of students and preserves the essential academic requirements of the University's courses and programs.

Students with diverse learning styles and needs are welcome in this course. If you require accommodations for a disability, or if you have any concerns about accessibility as it relates to the course, the classroom or the course materials, please contact Accessibility Services as soon as possible: accessibility.services@utoronto.ca, or <http://studentlife.utoronto.ca/as>.

ACCOMMODATIONS FOR RELIGIOUS OBSERVANCES

Following the University's policies, reasonable accommodations will be made for students who observe religious holy days that coincide with the due date/time of an assignment, tutorial, class or laboratory session. Students must inform the instructor **before** the session/assignment date to arrange accommodations.

ADDITIONAL SERVICES & SUPPORT

The following are some important links to help you with academic and/or technical service and support:

- General student services and resources at [Student Life](#)
- Full library service through [University of Toronto Libraries](#)
- Resources on conducting online research through [University Libraries Research](#)
- Resources on academic support from the [Academic Success Centre](#)
- Learner support at the [Writing Centre](#)
- Information for [Technical Support/Quercus Support](#)

ACKNOWLEDGEMENT OF TRADITIONAL LANDS

We wish to acknowledge this land on which the University of Toronto operates. For thousands of years, it has been the traditional land of the Huron-Wendat, the Seneca and, most recently, the Mississaugas of the Credit River. Today, this meeting place is still the home to many Indigenous people from across Turtle Island and we are grateful to have the opportunity to work on this land.