Faculty of Agricultural and Food Sciences, Department of Soil Science, University of Manitoba Physical Properties of Soils (SOIL 4060)

	Cou	rse Details
Course Title	Physical Properties of Soils	
Course Number	SOIL 4060	
Term	Winter 2024 (A01)	
Course Duration	January 8, 2024, to April 10, 2024	
Course Credits Hours	3	
Prerequisites	Soils and Landscapes in Our Environment (SOIL 3600), Transport Phenomena (BIOE 2110) or a consent of the instructor	
Lecture/ Lab Hours and Locations	Lectures: Mondays, Wee Location: Agriculture Bu	dnesdays, Fridays; 9:30 am -10:20 am uilding Room 343
	Labs/Tutorials: Tuesday Lab Location: 318 J.H. I	· ·
	In strue stars of	ontact Information
Dr. Afua Adobea Mant	e Soil Physical Processes,	Email: <u>Afua.Mante@umanitoba.ca</u> Phone: 204 891 7684
	Science, University of	Office Hours: Mondays, Wednesdays, and Fridays, 11
Manitoba	Science, University of	am - 12 pm or send an email to set up appointment
1)Iullitoou		Location: 380 Ellis Building
	Teaching Assista	nt Contact Information
Taurai Matengu, PhD S	Student	Email: matengut@myumanitoba.ca
Department of Soil Science, University of Manitoba		Office Hours: Tuesdays and Thursdays, 10:30 am – 11:30 am or send an email to set up an appointment Location: 321-Ellis Building
	Course	Description
Course Description		e Description
Course Description (UM Calendar)	Physical properties of soils and their relation to plant growth. Topics discussed include particle size distribution, soil water, soil structure, soil temperature, and soil aeration.	
General Course Overview	Students will be able to understand physical properties of soils, methods for their measurement, their importance to, and strategies for managing them for improved soil physical processes for sustainable management of agroecosystems and the environment at large.	
	Course Le	arning Outcomes
the scientific pStudents will	e able to identify a need re rinciples to design an opti be able to evaluate the f	elated to soil and environmental management and apply mal solution to address the need. feasibility of solutions utilizing appropriate concepts, sical properties and processes and within a sustainability

framework.

Winter 2024 Course Information and Schedule

- Students will be able to create integrated strategies to address identified needs to promote sustainable soil and environmental management.
- Students will be able to apply concepts, principles, laws, and theories of soil physical properties and processes to advance the understanding of the interaction among the aspects of soil science when addressing agronomic and environmental issues.

D 1 1		Course Materials
_	Materials There are <u>no required texts</u> for the course	
Recomment Materials	the Ag	nmental Soil Physics - Daniel Hillel -Academic Press (On reserve at . Library)
		action to Environmental Soil Physics - Daniel Hillel -Academic Press serve at the Ag. Library)
	• Soil Pl	hysics - Agricultural and Environmental Application - H. Don Scott - State University Press
	• Soil Pl Sons	nysics - (Sixth Edition) - W.A. Jury, and Robert Horton - John Wiley &
		nysics (3rd edition) - T.J. Marshall, J.W. Holmes, and C.W. Rose - idge University Press
		nysics - L.D. Baver. W.H. Gardner, and W.R. Gardner - John Wiley &
		nysics with Hydrus - Radclife and Simunek
l	Methods of Soil Analysis-Arnold Klute	
		Course Schedule
This schedule is subject to change at the discretion of the instructor and/or based on the learning needs of the students but such changes are subject to section 2.8 of the ROASS (Responsibilities of Academic Staff with Regard to Students) procedure).		
#	Estimated Periods	
1	2	Introductory class and positionality
2	2	Soil as a complex system
3	2	Basic relationships
4	2	Static physical properties
5	2	Nature of clay
6	2	Soil structure
7	2	Soil water content
8	3	Soil water energy state
9	4	Flow of water in soils
10	2	Infiltration
11	2	Solute transport
12	2	Soil aeration and gas transport
13	3	Soil temperature and heat transfer
14	2	Soil dynamics
15	2	Plant water availability
		· ·

#	Date	Labs
1	Jan 16	Lab safety, soil profile observation, soil texture (feel method)
2	Jan 23	Soil texture (hydrometer method)
3	Jan 30	Soil bulk density, soil porosity, aggregate stability
4	Feb 6	Soil water content and energy state
5	Feb 27	Saturated hydraulic conductivity
6	Mar 5	Thermal conductivity, heat capacity, thermal diffusivity
7	Mar 19	LPL, UPL, plasticity, consistency index

Course Evaluation and Assessment	
Type of Assessment	Course Grade Assigned
Individual/ Lab Assignments	20%
Team Project and Oral Presentation	15%
In-class Team Discussions	5%
Peer Evaluation	5%
Mid-term Exam	20%
Final Exam	35%

Grading Scale for Course	
Letter Grade	Percentage out of 100
A+	≥ 90
А	85 - 89
B+	80 - 84
В	70 – 79
C+	60 - 69
С	55- 59
D	46 - 54
F	≤ 45

Assignment Feedback

- Assignments will be available on UMLearn in Assignment folder.
- Assignment submission folders will be created on UMLearn for your assignment submissions.
- Assignments are due one week after they are assigned (unless otherwise specified).
- Feedback on assignments will be provided one week after submission.

Course Policy	
Late Assignments	 Assignments submitted after the due date will be deducted 10% per school day. Assignments will not be accepted when graded assignments have been returned.
Attendance and Participation	You are required to attend all classes and to complete your assignments, and labs, and fully participate in discussions.
	Always notify me and the TA ahead of class/ lab if you are unable to attend.

Classroom and email conduct	Your full attention is requested during lectures and all class discussions.
	You are required to obtain and use your University of Manitoba email account for all communication between yourself and the university. All communication must comply with the Electronic Communication with Student Policy: http://umanitoba.ca/admin/governance/governing_documents/community/electronic communication with students policy.html.
Academic integrity	Each student in this course is expected to complete their coursework and programs of study with integrity by making a commitment to the six fundamental values of honesty, trust, fairness, respect, responsibility, and courage.
	Plagiarism, duplicate submission, cheating on quizzes, tests, and exams, inappropriate collaboration, academic fraud, and personation are violations of the Student Discipline Bylaw and will lead to the serious disciplinary action.
	Visit the Academic Calendar, Student Advocacy, and Academic Integrity web pages for more information and support.
	Take Academic Integrity and Student Conduct Tutorial here
Copyright	Students do not have ownership rights to materials developed for the course. Posting or any other means of publishing these materials is prohibited.
	Please respect copyright. We will use copyrighted content in this course. I have ensured that the content I use is appropriately acknowledged and is copied in accordance with copyright laws and university guidelines. Copyrighted works, including those created by me, are made available for private study and research and must not be distributed in any format without permission. Do not upload copyrighted works to a learning management system (such as UM Learn) or any website (e.g., Course Hero, Chegg, etc.), unless an exception to the Copyright Act applies or written permission has been confirmed. For more information, see the <u>University's Copyright Office website</u> (http://umanitoba.ca/copyright/) or contact <u>um_copyright@umanitoba.ca</u> .
Recording Class Lectures	No audio or video recording of lectures or presentations is allowed in any format, openly or surreptitiously, in whole or in part without permission from Dr. Afua Mante. Course materials (both paper and digital) are for the participant's private study and research.
Technology use	All course materials, assigned readings, submission of assignments, feedback on assignments, group assignments, and posting assignment grades will be accessed on UMLearn
	The use of electronic devices such as computers or tablets is welcome during class with their use solely focused on class activities and not disruptive to other students.

Student Accessibility Services (SAS)	The University of Manitoba is committed to providing an accessible academic community. <u>Student Accessibility Services</u> (https://umanitoba.ca/student-supports/accessibility) offers academic accommodation supports and services such as note-taking, interpreting, assistive technology and exam accommodations. Students who have, or think they may have, a disability (e.g., mental health, learning, medical, hearing, injury-related, visual) are invited to contact SAS to arrange a confidential consultation. SAS is located at 520 University Centre (Fort Garry Campus).
Respectful Work and Learning Environment	The university prohibits harassment and discriminatory practices. Each individual has a right to learn in an inclusive and respectful environment, hence no disrespectful and dis- criminatory activity towards the instructor or other students
Policy	will be allowed in this course (See the University's policy of RWLE: <u>https://umanitoba.ca/about-um/respectful-work-</u> <u>policy</u>).
	Low estant Datas
Voluntary	Important Dates March 20, 2024
Withdrawal Date	
Mid-term Exam	February 13, 2024 (Tuesday 2:30 - 4:30) Location: 245 Ellis Building
Guest lectures	March 11, 13, 15, 2024
Team oral presentation	April 1, 3, 5, 2024
Last day of classes	April 10, 2024
Final exam period	April 12 - 26, 2024
Holiday and closures	February 19, 2024 (Louis Riel Day); February 19 - 23, 2024 (Winter break); March 29, 2024 (Good Friday)

UM Policies

As a student at the University of Manitoba you have rights and responsibilities. It is important for you to know what you can expect from the University as a student and to understand what the University expects from you. Become familiar with the policies and procedures of the University and the regulations that are specific to your faculty, college or school.

The University of Manitoba (UM) website's <u>Governing Documents</u> (https://umanitoba.ca/governance/governing-documents) is one important source of information, in particular the Academic and Students sections. The Student Advocacy office can also help you understand policies and procedures; find their information in the UM Learner Supports section below.

Academic Calendar

The <u>Academic Calendar</u> (https://umanitoba.ca/registrar/academic-calendar) is the University's official publication containing course descriptions, program and graduation requirements, as well as UM and faculty/school-specific rules, regulations and policies. In particular, familiarize yourself with the sections University Policies and Procedures and General Academic Regulations.

Academic Integrity

In addition to reviewing your instructor's academic integrity policy listed in their syllabus, you are expected to view the General Academic Regulation section within the <u>Academic Calendar</u> (https://umanitoba.ca/registrar/academic-calendar) and specifically read the regulation pertaining to Academic Integrity. Ask your instructor for additional information about demonstrating academic integrity in your academic work, and consult the following UM resources for more information and support:

- <u>Academic Integrity</u> (https://umanitoba.ca/student-supports/academic-supports/academic-integrity)
 - <u>Student Resources</u> (https://umanitoba.ca/student-supports/academic-supports/academic-integrity#resources-to-conduct-academic-work-with-integrity)
 - <u>Academic Misconduct and How to Avoid It</u> (https://umanitoba.ca/studentsupports/academic-supports/academic-integrity#academic-misconduct-and-how-to-avoidit)
- <u>Student Advocacy Office</u> (https://umanitoba.ca/student-supports/academic-supports/student-advocacy)

Copyright

All students are required to respect copyright as per Canada's Copyright Act. Staff and students play a key role in the University's copyright compliance as we balance user rights for educational purposes with the rights of content creators from around the world. The <u>Copyright Office</u> (https://umanitoba.ca/copyright/) provides copyright resources and support for all members of the University of Manitoba community.

Grade Appeals

If you have questions about your grades, talk to your instructor. There is a process for term work and final grade appeals. Note that you have the right to access your final examination scripts. See the <u>Registrar's</u> <u>Office</u> (https://umanitoba.ca/registrar/grades/appeal-grade) for more information including appeal deadline dates and the appeal form.

Intellectual Property

For information about rights and responsibilities regarding intellectual property view the <u>Intellectual</u> <u>Property Policy</u> (https://umanitoba.ca/governance/governing-documents/governing-documents-university-community#intellectual-property)

Program-Specific Regulations

For information on regulations that are specific to your academic program, read the section in the Academic Calendar and on the respective <u>faculty/college/school</u> website (<u>https://umanitoba.ca/academics</u>).

Respectful Work and Learning Environment

The University is committed to a respectful work and learning environment. You have the right to be treated with respect and you are expected to conduct yourself in an appropriate and respectful manner. Policies governing UM community behaviour include:

- <u>Respectful Work and Learning Environment</u> (https://umanitoba.ca/about-um/respectful-work-and-learning-environment-policy)
- <u>Student Discipline</u> (https://umanitoba.ca/governance/governing-documents-students#studentdiscipline)
- <u>Violent or Threatening Behaviour</u> (https://umanitoba.ca/governance/governing-documentsstudents#violent-or-threatening-behaviour)

The UM website, <u>Engaging in Respectful Conduct</u> (https://umanitoba.ca/student-supports/respectfulconduct), includes more details about expectations for behaviours related to university activities.

Sexual Violence Policies

The UM has several policies and procedures that deal with the rights and responsibilities of the University community with regards to all forms of sexual violence. For a comprehensive list of policies and associated resources, visit the <u>Sexual Violence Resource Centre's information page</u> (https://umanitoba.ca/student-supports/sexual-violence-support-and-education/sexual-violence-get-informed). Please note that there are many supports available in addition to these policy documents (see UM Learner Supports).

Voluntary Withdrawal

Voluntary withdrawal (VW) is a way for students to leave a class without academic penalty once the Registration Revision Period has ended. If you opt to voluntarily withdraw from a course, you will not be eligible for a refund and, if applicable, will still be required to pay any outstanding tuition fees for the course. On your transcript, the course you have withdrawn from will be listed; however, "VW" will appear in lieu of a grade. If you do not drop a course before the VW deadline, you will receive a final grade in the course on your transcript.

Please note that there are separate deadlines for dropping a course early in a term during the Registration Revision Period. Dropping a course means you are removing that course from your schedule, will not be charged tuition fees for that course, and the course will not appear on your transcript.

The Registrar's Office website, <u>Withdraw from a Course</u> (https://umanitoba.ca/registrar/withdraw-course), includes more information on the different ways in which you can withdraw from a course and important dates and deadlines to do so.

Links to UM policies, procedures, and schedule A

UM Policies: (https://umanitoba.ca/governance/sites/governance/files/2021-05/Responsibilities%20of%20Academic%20Staff%20re%20Students%20ROASS%20Policy%20-%202016_09_01.pdf)

UM Procedure:

https://umanitoba.ca/governance/sites/governance/files/2021-05/Responsibilities%20of%20Academic%20Staff%20re%20Students%20ROASS%20Procedures%20-%202016_09_01.pdf

UM Schedule A:

https://umanitoba.ca/governance/sites/governance/files/2021-05/Responsibilities%20of%20Academic%20Staff%20re%20Students%20ROASS%20Procedures%20-%20Schedule%20A%20-%202016_09_01.pdf

UM Learner Supports

Below you will find a select list of important supports for learners at the UM, both academic supports and otherwise. For a complete listing of all learner supports at the University of Manitoba, visit the <u>Student Supports website</u> (https://umanitoba.ca/student-supports).

Academic Advising

Contact an <u>Academic Advisor</u> (https://umanitoba.ca/student-supports/academic-supports/academic-advising) for support with degree planning and questions about your academic program and regulations.

Academic Learning Centre (ALC)

The <u>Academic Learning Centre</u> (https://umanitoba.ca/student-supports/academic-supports/academic-learning) offers one-to-one tutoring, groups study sessions and workshops, as well as video and tip-sheet resources to help you throughout your academic program. All Academic Learning Centre programing, supports, and services are free for UM students.

Make an appointment for <u>free one-to-one tutoring</u> (https://umanitoba.ca/student-supports/academicsupports/academic-learning/tutoring-group-study#individual-tutoring). Content tutors (over 90 UM courses) can help you understand concepts and learn problem-solving strategies. Study skills tutors can help you improve your skills such as time management and goal setting, reading and note-taking, as well as learning and test-taking strategies. Writing tutors can give you feedback on your academic writing, whether you are just getting started on a written assignment or already have a draft. English as an Additional Language specialist, Antoanela Denchuk, is available for one-to-one tutoring to help you improve your English-language academic writing skills. Use the drop-down menu, read the tutor biographies, and make an appointment for tutoring on the <u>Academic Learning Centre schedule</u> (https://manitoba.mywconline.com/).

Attend <u>Supplemental Instruction (SI)</u> (https://umanitoba.ca/student-supports/academicsupports/academic-learning/tutoring-group-study) sessions in historically difficult courses (including Chemistry, Engineering, and Computer Science). These free weekly review sessions are facilitated by a peer mentor who has previously taken the course and provide an opportunity to discuss course content, ask questions, compare notes, solve practice problems, and develop study strategies. See online for a list of SI courses and meeting times.

Register for an <u>Academic Success Workshop</u> (https://umanitoba.ca/student-supports/academic-supports/academic-learning/academic-success-workshops), where you can learn strategies to improve your writing and studying. More information on topics, dates, and registration, are found online.

Register for <u>Faculty of Graduate Studies Grad Steps Workshops</u> (https://umanitoba.ca/graduatestudies/student-experience/graduate-student-workshops). These workshops are specifically designed for students working towards **Master's degrees or PhDs.** More information on topics, dates, and registration can be found online.

Access the Academic Learning Centre's collection of <u>videos and tip sheets</u> (https://umanitoba.ca/student-supports/academic-supports/academic-learning#tip-sheets-for-writing-and-study-skills) to help you with many of the academic tasks you'll encounter in university.

Contact the Academic Learning Centre by calling 204-480-1481 or emailing academic_learning@umanitoba.ca. Bannatyne students can contact the Bannatyne Student Services office at 204-272-3190.

Basic Needs

It can be difficult to learn and succeed in courses when you are struggling to meet your or your family's basic needs. Several UM and community resources are listed below if you would benefit from support with regards to housing, food, finances, and/or childcare:

- Housing
 - <u>UM Housing</u> (https://umanitoba.ca/housing)
 - <u>Winnipeg Rental Network</u> (https://www.winnipegrentnet.ca/)
 - o <u>Manitoba Residential Tenancies Branch</u> (https://www.gov.mb.ca/cca/rtb/)
 - HOPE End Homelessness Winnipeg Services & Supports (https://umanitoba.ca/housing)
- Food
 - o <u>U of M Food Bank</u> (https://umanitoba.ca/financial-aid-and-awards/u-m-food-bank)
 - <u>Food Matters Manitoba</u> (https://foodmattersmanitoba.ca/find-emergency-food-inwinnipeg/)
- Finances
 - o <u>UM Financial Aid and Awards</u> (https://umanitoba.ca/financial-aid-and-awards)
 - <u>Manitoba Student Aid</u> (https://www.edu.gov.mb.ca/msa/)
- Child Care
 - <u>UM Child Care</u> (https://umanitoba.ca/about-um/child-care)
 - o <u>Manitoba Child Care Subsidy</u> (https://bit.ly/3yG3ijy)
 - o <u>Manitoba Child Care Association</u> (https://mccahouse.org/looking-for-child-care/)

English Language Centre

The <u>English Language Centre (ELC)</u> (https://umanitoba.ca/english-language-centre) provides courses, tests, accommodations and individual support to students whose first language is not English in order to support academic success and participation in the University of Manitoba community.

Health and Wellness

Physical, mental, emotional, and spiritual health and wellness play a critical role in student success. See all of UM's resource on their <u>Health and Wellness</u> (https://umanitoba.ca/student-supports/student-health-and-wellness) website, and make note of several specific UM and community supports listed below.

Winnipeg Urgent Physical and Mental Health Care

If you are an adult experiencing a mental health or psychosocial crisis, contact the <u>Klinic Community</u> <u>Health</u> (https://klinic.mb.ca/crisis-support/) 24/7 crisis line at 204-786-8686, visit the <u>Crisis Response</u> <u>Centre</u> (https://sharedhealthmb.ca/services/mental-health/crisis-response-centre/) located at 817 Bannatyne Avenue, or contact the Mobile Crisis Service at 204-940-1781.

To speak with a nurse for guidance on what health-care path to take for the issue you are facing or for general information about health resources available in Manitoba, contact <u>Health Links</u> (https://misericordia.mb.ca/programs/phcc/health-links-info-sante/) at 1-888-315-9257 (toll free). If you need urgent medical care, visit the Winnipeg Regional Health Authority's <u>Emergency</u> <u>Department & Urgent Care Wait Times</u> webpage (https://wrha.mb.ca/wait-times/) for a list of locations and current wait times.

Student Counselling Centre (SCC)

The <u>Student Counselling Centre</u> (https://umanitoba.ca/student-supports/student-health-andwellness/student-counselling-centre-scc) provides free counselling and mental health support to UM, English Language Centre, and International College of Manitoba (ICM) students. We are open yearround, Monday through Friday from 8:30 am to 4:30 pm. Our commitment is to offer a support service to every student who contacts us. Visit the SCC's <u>For Urgent Help</u> (https://umanitoba.ca/student-supports/student-health-and-wellness/student-counselling-centre-scc#for-urgent-help) webpage or the urgent care resources listed above if you require immediate support.

Visit the SCC's <u>Our Services</u> (https://umanitoba.ca/student-supports/student-health-and-wellness/student-counselling-centre-scc#for-urgent-help) webpage for more information on accessing a variety of services including individual counselling, counselling workshops and groups, support resources, and learning disability assessment services.

The SCC is located is located at 474 UMSU University Centre (Fort Garry Campus).

Health and Wellness Office

Students often juggle multiple demands, and we recognize that it can be difficult to find balance. For any changes you want to make to your health and wellness, the Health and Wellness Office at the University of Manitoba would like to support you in your journey. We are here to help you take control of your own health and make your own decisions. We are a judgment-free space and we avoid labels whenever possible. For more information, please visit the <u>Health and Wellness Office</u> (https://umanitoba.ca/student-supports/health-wellness) website.

Spiritual Care and Multifaith Centre

Spiritual care services are available to all, whether you identify as spiritual, atheist, religious or agnostic. <u>Spiritual Services</u> (https://umanitoba.ca/student-supports/spiritual-services) also offer specific denominational support for certain religious groups and by Indigenous Elders-in-Residence.

Student Support Case Management (SSCM)

Contact the <u>Student Support Case Management team</u> (https://umanitoba.ca/studentsupports/academic-supports/student-advocacy/case-management) if you are concerned about yourself or another student and don't know where to turn. SSCM helps connect students with on and off campus resources, provides safety planning, and offers other supports, including consultation, educational workshops, and referral to the STATIS threat assessment team.

University Health Service (UHS)

The <u>University Health Service</u> (https://umanitoba.ca/student-supports/health-wellness/university-health-service) offers a full range of medical services to students, including psychiatric consultation, via two health clinics:

- Fort Garry Campus: (204) 474-8411, ACW-Lot temporary trailer (behind the Isbister building)
- Bannatyne Campus: (204) 474-8411, P309 Pathology Building

Student Services at Bannatyne Campus

Student Services at Bannatyne Campus (SSBC) offers a full range of mental health supports to students and residents in the Rady Faculty of Health Sciences, along with other academic and personal supports. Visit the <u>SSBC website</u> (https://umanitoba.ca/student-supports/student-services-bannatyne-campus) for a list of services available.

Indigenous Students

Staff, faculty and Elders are well-equipped to ensure your university experience is as beneficial, accessible, and successful as possible. Visit the Indigenous <u>Student Experience</u> (https://umanitoba.ca/indigenous/student-experience) website for more information on the supports and services available.

International Students

The transition to a new country and a new academic system can be both exciting and overwhelming. The International Centre (IC) is here to help you settle into life at University of Manitoba. Visit the <u>International Students</u> website (https://umanitoba.ca/current-students/international) for more information.

Sexual Violence Support and Education

Sexual violence affects people of all ages, sexual orientations, genders, gender identities, abilities and relationship statuses. At the U of M, we are committed to ensuring a respectful work and learning environment for all. We want to build a safe and inclusive campus community where survivors of sexual violence know they can receive the supports they need to succeed, both academically and personally.

The <u>Sexual Violence Resource Centre</u> (https://umanitoba.ca/sexual-violence), located at 537 UMSU University Centre (Fort Garry campus) provides support, resources, information and referral services for any student, faculty or staff member who has been affected by sexual violence.

Student Accessibility Services (SAS)

The University of Manitoba is committed to providing an accessible academic community. <u>Student</u> <u>Accessibility Services</u> (https://umanitoba.ca/student-supports/accessibility) offers academic accommodation supports and services such as note-taking, interpreting, assistive technology and exam accommodations. Students who have, or think they may have, a disability (e.g., mental health, learning, medical, hearing, injury-related, visual) are invited to contact SAS to arrange a confidential consultation. SAS is located at 520 University Centre (Fort Garry Campus).

Student Advocacy

<u>Student Advocacy</u> (https://umanitoba.ca/student-supports/academic-supports/student-advocacy) is a safe place for students. We help you navigate university processes and advocate for your rights as a student at UM. If anything in your personal or academic life is affecting your studies, contact our confidential intake assistant by phone (204-474-7423) or email (<u>stadv@umanitoba.ca</u>).

University of Manitoba Libraries (UML)

As the primary contact for all research needs, your liaison librarian can play a vital role when completing academic papers and assignments. Liaisons can answer questions about managing citations, or locating appropriate resources, and will address any other concerns you may have, regarding the research process. Liaisons can be contacted by email or phone, and are also available to meet with you in-person. A complete list of liaison librarians (http://bit.ly/WcEbA1) can be found by subject.

In addition, general library assistance is provided in person at 19 University Libraries, located on both the Fort Garry and Bannatyne campuses, as well as in many Winnipeg hospitals. For a listing of all libraries, please consult the <u>UM Libraries and Departments</u> (https://libguides.lib.umanitoba.ca/c.php?g=298526) webpage. When working remotely, students can also receive help online, via the Ask-a-Librarian chat found on the <u>University of Manitoba Libraries</u>' homepage (https://umanitoba.ca/libraries/)