Syllabus

HNSC 3300: Vitamins and Minerals in Human Health

(Winter 2023)
TABLE OF CONTENTS

COURSE DETAILS .................................................................................................................................................... 3
INSTRUCTOR CONTACT INFORMATION .................................................................................................................. 3
COURSE DESCRIPTION ........................................................................................................................................... 4
COURSE GOALS ...................................................................................................................................................... 4
COURSE LEARNING OBJECTIVES ............................................................................................................................. 4
TEXTBOOK, READINGS, AND COURSE MATERIALS ................................................................................................. 4
USING COPYRIGHTED MATERIAL ........................................................................................................................... 6
COURSE TECHNOLOGY ........................................................................................................................................... 6
EXPECTATIONS: I EXPECT YOU TO .......................................................................................................................... 6
EXPECTATIONS: YOU CAN EXPECT ME TO .............................................................................................................. 8
CLASS SCHEDULE AND COURSE EVALUATION ........................................................................................................ 8
GRADING ............................................................................................................................................................... 9
VOLUNTARY WITHDRAWAL ................................................................................................................................... 9
ASSIGNMENT DESCRIPTIONS ............................................................................................................................... 10
REFERENCING STYLE ............................................................................................................................................ 10
ASSIGNMENT FEEDBACK ...................................................................................................................................... 10
ASSIGNMENT EXTENSION AND LATE SUBMISSION POLICY .................................................................................. 10
UNIVERSITY SUPPORT OFFICES & POLICIES .......................................................................................................... 10
COURSE DETAILS

Course Title & Number: Vitamins and Minerals in Human Health- HNSC 3300

Number of Credit Hours: 3

Class Times & Days of Week: 10:00 am – 11:15 am

Location for classes/labs/tutorials: AGRICULTURE 138

Pre-Requisites: [(CHEM/MBIO 2750 and CHEM 2740 (or the former CHEM/MBIO 2780)) or (CHEM/MBIO 2710 (CHEM/MBIO 2711) and CHEM 2720 (CHEM 2721) (or the former CHEM/MBIO 2370 (the former CHEM 2371))] and HNSC 2140 and [BIOL 1412 (BIOL 1413) or BIOL 2420 (BIOL 2421)]

Instructor Contact Information

Instructor(s) Name & Preferred Form of Address: Dr. Aayushi Kadam

Office Location:

Office Hours or Availability: Open, but please call or send email to arrange a mutually convenient time

Office Phone No.

Email: Aayushi.Kadam@umanitoba.ca

All emails must be professionally written. Avoid emoticons, slang, texting shorthand. Emails will be returned within 24hrs of receiving messages, excluding weekends.

Contact: Please contact the instructor via email for all communications.
Course Description

U of M Course Calendar Description
Interactive discussion on the physiological importance of vitamins and minerals in the human body, including factors affecting dietary requirements, metabolism and roles in disease progression and prevention.

General Course Description
This course presents information about the metabolism and physiological mechanisms of vitamins and minerals. Also the major mineral elements and the importance of fluid balance in the body will be taught.

Course Goals
This course will help the students understand the function and role of vitamins and minerals in growth and development. Further, the students will develop the ability to identify deficiencies and toxicities associated with each nutrient.

Course Learning Objectives
At the end of the course, for each nutrient covered, students will apply and enhance their knowledge in regard to
1. Know the different forms of the discussed nutrient and their relationships to each other.
2. Know what foods or food groups the nutrients are found in.
3. Be able to explain how the nutrient is digested, absorbed and transported in the body.
4. Explain what factors can affect the bioavailability of the nutrient.
5. Understand and explain the functions of the nutrient.
6. Know the physiologic processes this nutrient affects and the enzymatic and/or nonenzymatic reactions involved.
7. Know the active form(s) of the nutrient.
8. Be able to explain the signs of deficiency and toxicity for the nutrient.
9. Be able to explain the influence of other nutrients and health conditions on individual nutrient deficiencies and toxicities.
10. Explain how nutrient status is assessed for each nutrient and what the potential confounding factors are in these assessment techniques.
11. Know unique characteristics of the nutrient.

Textbook, Readings, and Course Materials


Reference Materials:

Note that the following are available (free!) online – to read or as downloadable PDF:

FOUNDATIONAL KNOWLEDGE CONTENT AREAS FOR DIETETICS EDUCATION

The Undergraduate Dietetics program is accredited by the Partnership for Dietetic Education and Practice (PDEP) and prepares students for eligibility for registration with a provincial dietetics regulatory body. The program is designed to meet the Integrated Competencies for Dietetic Education and Practice (ICDEP). Following are the foundational knowledge areas that this course is designed to meet towards the ICDEP.

![Highest level achieved: 1= demonstrate broad knowledge; 2= demonstrate comprehension; 3 = analyze, interpret and apply knowledge]

<table>
<thead>
<tr>
<th>Content Area</th>
<th>Foundational Knowledge</th>
<th>Cognitive Complexity Level</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Biochemistry</strong></td>
<td>Foundations of chemistry and biochemistry</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Major metabolic pathways</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Mechanisms of metabolic regulation</td>
<td>2</td>
</tr>
<tr>
<td><strong>Human Nutrition across the Lifespan</strong></td>
<td>Ingestion, digestion, absorption, metabolism and excretion of nutrients</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Biochemical utilization of nutrients and energy</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Nutrient and energy requirements</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Nutrition recommendations and guidelines</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Effect of deficiencies and toxicities of nutrients</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Food sources of nutrients and dietary supplements</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Role of nutrients and other food components in health</td>
<td>3</td>
</tr>
</tbody>
</table>
Using Copyrighted Material

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, unless an exception to the Copyright Act applies or written permission has been confirmed. For more information, see the University's Copyright Office website at http://umanitoba.ca/copyright/ or contact um_copyright@umanitoba.ca.

Course Technology

It is the general University of Manitoba policy that all technology resources are to be used in a responsible, efficient, ethical and legal manner. The student can use all technology in classroom setting only for educational purposes approved by instructor and/or the University of Manitoba Disability Services. Student should not participate in personal direct electronic messaging / posting activities (e-mail, texting, video or voice chat, wikis, blogs, social networking (e.g. Facebook) online and offline “gaming” during scheduled class time. If student is on call (emergency) the student should switch his/her cell phone on vibrate mode and leave the classroom before using it. (© S Kondrashov. Used with permission)

All course communication and learning content will be posted on UM Learn. Students are expected to check the site frequently for content updates and communication from the instructor. Please ensure your UM Learn account is working as soon as the course term begins.

Any difficulties with logging in, please contact the UM Learn helpdesk for assistance: https://universityofmanitoba.desire2learn.com/d2l/login

Expectations: I Expect You To

1. I will treat you with respect and would appreciate the same courtesy in return. See Respectful Work and Learning Environment Policy.
2. Attend class lectures. If a student misses a class, it is his or her responsibility to acquire any missed information or handouts from other students who were present.
3. Avoid use of cell phones, tablets or other electronic devices, except with my prior approval.
4. Respect your peers by avoiding chatting and noise-making during classes.
5. Respect the input of your peers during class discussions.

Class Communication:

The University requires all students to activate an official University email account. For full details of the Electronic Communication with Students please visit: http://umanitoba.ca/admin/governance/media/Electronic_Communication_with_Students_Policy_-_2014_06_05.pdf

Please note that all communication between myself and you, as a student, must comply with the electronic communication with student policy (http://umanitoba.ca/admin/governance/governing_documents/community/electronic_communication_with_students_policy.html). You are required to obtain and use your U of M email account for all communication between yourself and the university.
Academic Integrity:
PLAGIARISM AND CHEATING
Plagiarism or any other form of cheating in examinations, term tests or academic work is subject to serious academic penalty (e.g. suspension or expulsion from the faculty or university). Cheating in examinations or tests may take the form of copying from another student or bringing unauthorized materials into the exam room (e.g., crib notes, pagers or cell phones). Exam cheating can also include exam personation. (Please see Exam Personation, found in the Examination Regulations section of the General Academic Regulations). A student found guilty of contributing to cheating in examinations or term assignments is also subject to serious academic penalty.

To plagiarize is to take ideas or words of another person and pass them off as one’s own. In short, it is stealing something intangible rather than an object. Plagiarism applies to any written work, in traditional or electronic format, as well as orally or verbally presented work. Obviously it is not necessary to state the source of well-known or easily verifiable facts, but students are expected to appropriately acknowledge the sources of ideas and expressions they use in their written work, whether quoted directly or paraphrased. This applies to diagrams, statistical tables and the like, as well as to written material, and materials or information from Internet sources. To provide adequate and correct documentation is not only an indication of academic honesty but is also a courtesy, which enables the reader to consult these sources with ease. Failure to provide appropriate citations constitutes plagiarism. It will also be considered plagiarism and/or cheating if a student submits a term paper written in whole or in part by someone other than him/ herself, or copies the answer or answers of another student in any test, examination, or take-home assignment.

Working with other students on assignments, laboratory work, take-home tests, or on-line tests, when this is not permitted by the instructor, can constitute Inappropriate Collaboration and may be subject to penalty under the Student Discipline By-Law.

An assignment, which is prepared and submitted for one course should not be used for a different course. This is called “duplicate submission” and represents a form of cheating because course requirements are expected to be fulfilled through original work for each course. When in doubt about any practice, ask your professor or instructor.
The Student Advocacy Office, 519 University Centre, 474-7423, is a resource available to students dealing with Academic Integrity matters.

Recording Class Lectures:
The course instructor and the University of Manitoba hold copyright over the course materials, presentations and lectures, which form part of this course. 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 the course instructor. Course materials (both paper and digital) are for the participant’s private study and research.

Student Accessibility Services:
The University of Manitoba is committed to providing an accessible academic community. Students Accessibility Services (SAS) 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 illness, learning, medical, hearing, injury-related, visual) are invited to contact SAS to arrange a confidential consultation.
Expectations: You Can Expect Me To

1. Maintain a safe, positive classroom experience where students will be able to speak freely and constructively about topic discussions.
2. Illustrate my teaching as drawings and notes on the overhead electronic board in addition to the powerpoint slides.
3. Provide direction to resources that may assist students with their academic experience.

CLASS SCHEDULE AND COURSE EVALUATION

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 ROASS.

<table>
<thead>
<tr>
<th>Date</th>
<th>Class Content &amp; Teaching Strategies</th>
<th>Evaluation</th>
<th>Type of Assessment</th>
<th>Due Date</th>
<th>Value of Final Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:00 am - 11:15 am Jan 10</td>
<td>Introduction</td>
<td>Assignment #1</td>
<td>11:59 pm, Feb 6</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>10:00 am - 11:15 am Jan 12&amp;16</td>
<td>Vitamin C, Antioxidants</td>
<td>Assignment #2</td>
<td>11:59 pm, Mar 6</td>
<td>20%</td>
<td></td>
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<tr>
<td>10:00 am - 11:15 am Jan 19&amp;24</td>
<td>Vitamin A, Carotenoids</td>
<td>Quiz #1</td>
<td>11:59 pm, Mar 15</td>
<td>15%</td>
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<tr>
<td>10:00 am - 11:15 am Jan 26</td>
<td>Vitamin E</td>
<td>Assignment #3</td>
<td>April 5</td>
<td>20%</td>
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<tr>
<td>10:00 am - 11:15 am Jan 31</td>
<td>Vitamin K</td>
<td>Final Exam</td>
<td>As per Exam time-table</td>
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<tr>
<td>10:00 am - 11:15 am Feb 2</td>
<td>pantothenic acid</td>
<td></td>
<td></td>
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<tr>
<td>10:00 am - 11:15 am Feb 7</td>
<td>biotin</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>10:00 am - 11:15 am Feb 9&amp;14</td>
<td>Thiamin, riboflavin, niacin</td>
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<td></td>
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<tr>
<td>10:00 am - 11:15 am Feb 16&amp;28</td>
<td>Vitamin B6, folate</td>
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<tr>
<td>10:00 am - 11:15 am March 2&amp;7</td>
<td>vitamin B12, choline</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:00 am - 11:15 am Mar 9&amp;14</td>
<td>Vitamin D, calcium</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>10:00 am - 11:15 am Mar 16</td>
<td>phosphorus, magnesium, fluoride</td>
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<td></td>
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<tr>
<td>10:00 am - 11:15 am Mar 21&amp;23</td>
<td>Electrolytes</td>
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Grading

<table>
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<tr>
<th>Letter Grade</th>
<th>Percentage out of 100</th>
<th>Grade Point Range</th>
<th>Final Grade Point</th>
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<tr>
<td>A+</td>
<td>91-100</td>
<td>4.25-4.5</td>
<td>4.5</td>
</tr>
<tr>
<td>A</td>
<td>81-90</td>
<td>3.75-4.24</td>
<td>4.0</td>
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<tr>
<td>B+</td>
<td>76-80</td>
<td>3.25-3.74</td>
<td>3.5</td>
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<tr>
<td>B</td>
<td>70-75</td>
<td>2.75-3.24</td>
<td>3.0</td>
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<tr>
<td>C+</td>
<td>65-69</td>
<td>2.25-2.74</td>
<td>2.5</td>
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<tr>
<td>C</td>
<td>60-64</td>
<td>2.0-2.24</td>
<td>2.0</td>
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<tr>
<td>D</td>
<td>50-59</td>
<td>Less than 2.0</td>
<td>1.0</td>
</tr>
<tr>
<td>F</td>
<td>Less than 50</td>
<td></td>
<td>0</td>
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</tbody>
</table>

Voluntary Withdrawal

- Important Dates:
  - January 20 is the last date to DROP a course with refund
  - The Winter term break is February 21-24
  - March 22 is the Voluntary Withdrawal Deadline

* I am willing to discuss the student’s progress and strategies for improvement prior the withdrawal date.

1. The students who did not drop the course by the deadline would be assigned a final grade.

2. The withdrawal courses will be recorded on official transcript.

3. Kindly refer to the Registrar’s Office web page for more information. Also identify if you are

ASSIGNMENT DESCRIPTIONS

Assignment 1

TITLE: Case Study on vitamin/mineral deficiency or toxicity

GOAL: Students should be able to identify the deficiencies and toxicity (Course Objectives 8).

PROCEDURE: Presentation

SUBMISSION GUIDELINES: PDF uploaded to UM Learn

EVALUATION CRITERIA: Presentation – 25%
  - Content – 25%
  - References – 25%
  - Overall Impression – 25%
Assignment 2

**TITLE**: Make a chart describing the sources, functions and deficiencies of major vitamins and minerals

**GOAL**: Students will be able to identify the sources of vitamins and minerals (Course Objectives 2).

**PROCEDURE**: Prepare a chart. Maximum 4 pages excluding cover page, single spaced

**SUBMISSION GUIDELINES**: PDF uploaded to UM Learn

**EVALUATION CRITERIA**: Presentation – 20%
- Content – 60%
- Overall Impression – 20%

Assignment 3

**TITLE**: Report on therapeutic applications of vitamin/mineral

**GOAL**: Students will understand the importance of vitamins and minerals in human health (Course Objectives 4-7).

**PROCEDURE**: Maximum 4 pages excluding cover page, single spaced

**SUBMISSION GUIDELINES**: PDF uploaded to UM Learn

**EVALUATION CRITERIA**: Content -40%
- References – 30%
- Overall Impression – 30%

Referencing Style


Assignment Feedback

Assignment feedback with grades will be provided to students electronically approx. 10-14 days after submission.

Assignment Extension and Late Submission Policy

Assignments will be submitted as PDF to UM LEARN on or before the posted due date. All assignments received past the due date and time will receive a 10% mark deduction for each day late. This will include weekends and statutory holiday dates. Extensions must be requested before the due date of that assignment to be considered.

**UNIVERSITY SUPPORT OFFICES & POLICIES**

**Writing and Learning Support**

The Academic Learning Centre (ALC) offers services that may be helpful to you throughout your academic program. Through the ALC, you can meet with a learning specialist to discuss concerns such as time management, learning strategies, and test-taking strategies. The ALC also offers peer supported study groups called Supplemental Instruction (SI) for certain courses that students have typically found difficult. In these study groups, students have opportunities to ask questions, compare notes, discuss content, solve practice problems, and develop new study strategies in a group-learning format.
You can also meet one-to-one with a writing tutor who can give you feedback at any stage of the writing process, whether you are just beginning to work on a written assignment or already have a draft. If you are interested in meeting with a writing tutor, reserve your appointment two to three days in advance of the time you would like to meet. Also, plan to meet with a writing tutor a few days before your paper is due so that you have time to work with the tutor’s feedback.

These Academic Learning Centre services are free for U of M students. For more information, please visit the Academic Learning Centre website at: http://umanitoba.ca/student/academiclearning/

You can also contact the Academic Learning Centre by calling 204-480-1481 or by visiting 205 Tier Building.

**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 can be found by subject: [http://bit.ly/WcEbA1](http://bit.ly/WcEbA1) or name: [http://bit.ly/1tJ0bB4](http://bit.ly/1tJ0bB4). 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 following: [http://bit.ly/1sXe6RA](http://bit.ly/1sXe6RA). When working remotely, students can also receive help online, via the Ask-a-Librarian chat found on the Libraries’ homepage: [www.umanitoba.ca/libraries](http://www.umanitoba.ca/libraries).

**For 24/7 mental health support, contact the Mobile Crisis Service at 204-940-1781.**

**Student Counselling Centre**

Contact SCC if you are concerned about any aspect of your mental health, including anxiety, stress, or depression, or for help with relationships or other life concerns. SCC offers crisis services as well as individual, couple, and group counselling. *Student Counselling Centre: [http://umanitoba.ca/student/counselling/index.html](http://umanitoba.ca/student/counselling/index.html)*

474 University Centre or S207 Medical Services
(204) 474-8592

**Student Support Case Management**

Contact the Student Support Case Management team 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.


520 University Centre
(204) 474-7423

**University Health Service**

Contact UHS for any medical concerns, including mental health problems. UHS offers a full range of medical services to students, including psychiatric consultation.
University Health Service http://umanitoba.ca/student/health/
104 University Centre, Fort Garry Campus
(204) 474-8411 (Business hours or after hours/urgent calls)

Health and Wellness
Contact our Health and Wellness Educator if you are interested in peer support from Healthy U or information on a broad range of health topics, including physical and mental health concerns, alcohol and substance use harms, and sexual assault.

Health and Wellness Educator
https://umanitoba.ca/student/health-wellness/welcome-about.html
britt.harvey@umanitoba.ca

Live Well @ UofM
For comprehensive information about the full range of health and wellness resources available on campus, visit the Live Well @ UofM site:
http://umanitoba.ca/student/livewell/index.html

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 Copyright Office provides copyright resources and support for all members of the University of Manitoba community. Visit http://umanitoba.ca/copyright for more information.

Your rights and responsibilities
As a student of 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 Academic Calendar http://umanitoba.ca/student/records/academiccalendar.html is one important source of information. View the sections University Policies and Procedures and General Academic Regulations.

While all of the information contained in these two sections is important, the following information is highlighted.

- 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 Registrar’s Office website for more information including appeal deadline dates and the appeal form http://umanitoba.ca/registrar/

- You are expected to view the General Academic Regulation section within the Academic Calendar and specifically read the Academic Integrity regulation. Consult the course
syllabus or ask your instructor for additional information about demonstrating academic integrity in your academic work. Visit the Academic Integrity Site for tools and support http://umanitoba.ca/academicintegrity/ View the Student Academic Misconduct procedure for more information.

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

  Respectful Work and Learning Environment
  http://umanitoba.ca/admin/governance/governing_documents/community/230.html
  
  Student Discipline
  http://umanitoba.ca/admin/governance/governing_documents/students/student_discipline.html
  and,

  Violent or Threatening Behaviour
  http://umanitoba.ca/admin/governance/governing_documents/community/669.html

- If you experience Sexual Assault or know a member of the University community who has, it is important to know there is a policy that provides information about the supports available to those who disclose and outlines a process for reporting. The Sexual Assault policy may be found at: http://umanitoba.ca/admin/governance/governing_documents/community/230.html

  More information and resources can be found by reviewing the Sexual Assault site http://umanitoba.ca/student/sexual-assault/

- For information about rights and responsibilities regarding Intellectual Property view the policy https://umanitoba.ca/governance/sites/governance/files/2021-06/Intellectual Property Policy - 2013_10_01 RF.pdf

For information on regulations that are specific to your academic program, read the section in the Academic Calendar and on the respective faculty/college/school web site http://umanitoba.ca/faculties/

Contact an Academic Advisor within our faculty/college or school for questions about your academic program and regulations http://umanitoba.ca/academic-advisors/

**Student Advocacy**

Contact Student Advocacy if you want to know more about your rights and responsibilities as a student, have questions about policies and procedures, and/or want support in dealing with academic or discipline concerns.

http://umanitoba.ca/student/advocacy/

520 University Centre
204 474 7423