



# SCHOOL OF PHARMACY

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[www.mun.ca/pharmacy/](http://www.mun.ca/pharmacy/)

#### Dean

Hensman, L.R., B.Sc.(Pharm.) *British Columbia*, Pharm.D. *SUNY at Buffalo*, M.B.A. *Memorial*; Associate Professor

#### Associate Dean, Graduate Studies and Research

Daneshtalab, M., Pharm.D. *Tehran*, Ph.D. *Tohoku*; Professor

#### Associate Dean, Undergraduate Studies

Phillips, L., B.Sc.(Pharm.) *Memorial*, Pharm.D. *British Columbia*; Cross appointment to Faculty of Medicine; Professor; Winner of the President's Award for Distinguished Teaching, 2010

#### Professor Emeritus

West, R., M.Sc., Ph.D. *McGill*

#### Professors

Liu, Hu, B.Sc.(Pharm.), M.Sc. *Beijing Medical*, Ph.D. *Alberta*  
Loomis, C.W., B.Sc.(Hons.), M.Sc., Ph.D. *Queen's*; Vice-President (Research)

#### Associate Professors

Hawboldt J., BSP *Saskatchewan*, Pharm.D. *Washington*; Cross appointment to Faculty of Medicine  
Kelly, D., B.Sc.(Pharm.) *Memorial*, Pharm.D. *Toronto*; Cross appointment to Faculty of Medicine  
Law, R.M.T., B.Sc.(Pharm.) *Toronto*, Pharm.D. *SUNY at Buffalo*; Cross appointment to Faculty of Medicine  
Wang, L., B.Sc., M.Sc. *Beijing Medical*, Ph.D. *Alberta*  
Weber, J., B.Sc. *Eastern Michigan*, M.Sc. *Montana*, Ph.D. *Medical College of Virginia*; Cross appointment to Faculty of Medicine

#### Assistant Professors

Bishop, L., B.Sc.(Pharm.) *Memorial*, Pharm.D. *Colorado*; Cross appointment to Faculty of Medicine  
Daneshtalab, N., B.Sc., Ph.D. *Alberta*; Cross appointment to Faculty of Medicine  
Dillon, C., B.Sc.(Pharm.) *Memorial*, Pharm.D. *Toronto*; Cross appointment to Faculty of Medicine  
Gamble, J.M., B.Sc. *Lakehead*, B.Sc.(Pharm.) M.Sc. *Alberta*  
Kielly, J., B.Sc.(Pharm.) *Memorial*, Pharm.D. *Toronto*; Cross

appointment to Eastern Health  
Schwenger, E., B.Sc.(Pharm.) *Memorial*, Pharm.D. *British Columbia*  
Twells, L., B.A. *Memorial*, M.Sc. *London*, Ph.D. *Memorial*; Joint appointment with Faculty of Medicine  
Young, S.W., B.Sc.(Pharm.), Pharm.D. *Idaho State*, M.Sc.(Med.) *Memorial*

#### Visiting Assistant Professors

Kille-Marino, J., B.Sc. *Pennsylvania State*, Ph.D. *West Virginia*, VMD *Pennsylvania*  
Pevida, A., B.N., R.N., M.Sc.(Med.) *Memorial*

#### Drug Information Pharmacists

Peddle, J., B.Sc.(Pharm.) *Memorial*  
Woodford, E., B.Sc.(Pharm.) *Memorial*

#### Adjunct Professor

MacDonald, D., B.Sc., M.Sc., Ph.D. *Memorial*

#### Clinical Assistant Professors

Edwards, S., B.Sc.(Neuro), B.Sc.(Pharm.) *Memorial*, Pharm.D. *Washington*  
Thomas, B., Pharm.D. *Colorado*

#### Cross Appointments

Dawe, L., B.Sc.(Hons.), B.Ed., Ph.D. *Memorial*, M.Sc. *Utah*; Cross appointment from Faculty of Science (Chemistry)  
Randell, E.W., Ph.D. *Memorial*, DCC, FCACB *Toronto*; Cross appointment from Faculty of Medicine

#### Lecturers

Conway, A., B.Ed., B.Sc.(Pharm.) *Memorial*  
Genge, T., B.Sc.(Pharm.) *Memorial*  
Lee, T., B.Sc.(Pharm.) *Memorial*

#### Structured Practice Experience Program Co-ordinator

Spurrell, W., B.Sc.(Pharm.) *Memorial*

#### Laboratory Instructor

Ryan, P., B.Sc., M.Sc.(Med.) *Memorial*

## 1 The Memorial University of Newfoundland Code

The attention of all members of the University Community is drawn to the section of the University Calendar titled **The Memorial University of Newfoundland Code**, which articulates the University's commitment to maintaining the highest standards of academic integrity.

## 2 School Description

The School of Pharmacy offers an undergraduate degree in pharmacy and graduate degrees in pharmaceutical sciences. The School is committed to providing an undergraduate program of quality and excellence that will prepare individuals who will contribute significantly in all settings of pharmacy practice. The experiential learning component of the program ensures students have the opportunity to integrate academic learning with professional practice and to develop the necessary knowledge, skills and attitudes required of practising pharmacists. The School encourages a close working relationship among students, faculty, and staff, and prides itself on its strong association with and support of the pharmacy community at both the provincial and national level.

Additional information regarding the School of Pharmacy is available at [www.mun.ca/pharmacy](http://www.mun.ca/pharmacy).

Students must meet all regulations of the School in addition to those stated in the general regulations. For information concerning fees and charges, admission/readmission to the University, and general academic regulations (Undergraduate), refer to **UNIVERSITY REGULATIONS**.

### 2.1 Vision Statement

Working together towards a healthy tomorrow; *Become....the future of pharmacy.*

### 2.2 Mission Statement

As a School of Pharmacy with a strong sense of community, we are dedicated to:

- expanding the School of Pharmacy and developing the School as a Centre of Excellence for Comprehensive Pharmacy Studies;
- preparing pharmacy professionals committed to collaborative patient-centered care;
- fostering excellence and innovation in research and graduate studies;
- advancing the scope of pharmacy practice; and
- building upon a learning environment in which every student is valued.

### 2.3 Accreditation Status

The School of Pharmacy is accredited by the Canadian Council for Accreditation of Pharmacy Programs (CCAPP) to June 2016.

### 3 Description of Program

The School of Pharmacy offers an undergraduate program leading to the degree of Bachelor of Science (Pharmacy). This degree is designed to prepare graduates for careers primarily in community and hospital settings but also in the pharmaceutical industry, pharmacy organizations, health sciences research, government, and educational environments. After successful completion of national examinations, a graduate of the program is eligible to apply to be licensed as a pharmacist in Newfoundland and Labrador and other provinces in Canada.

The program of study leading to the Bachelor of Science (Pharmacy) degree has two phases and requires at least five years to complete. Prior to entry to the program students will acquire a background in the mathematical and physical sciences. Once in the program students will take courses in the basic health sciences, pharmacy sub-specialties and social/administrative sciences. At the end of each year students will have an opportunity to apply the academic knowledge acquired and to develop and practice patient care skills by participating in experiential learning within community and hospital settings. During the program students will develop an understanding of the professional and societal responsibilities of a pharmacist, and will recognize the need for lifelong learning.

#### 3.1 Structured Practice Experience

Students are required to successfully complete all experiential components of the program, including the Structured Practice Experience (SPE). During SPE's students are placed in a variety of pharmacy practice settings and are brought into direct contact with patients, pharmacists and other health professionals. Students become involved in the practice of pharmaceutical care and are expected to assume increasing responsibility as their education advances. Such practice experiences ensure students are exposed to situations which cannot be provided in the classroom.

1. The Joint Committee on Structured Practice Experience, consisting of representatives from both the School of Pharmacy and the Newfoundland and Labrador Pharmacy Board, is responsible for providing the overall direction for the program and recommending policies and procedures for its operation.
2. Students will be placed at sites by the School. The Structured Practice Experience Co-ordinator liaises with students to determine placements.
3. While every effort will be made to accommodate a student's request to complete SPEs in a specific location, a student may be assigned to any participating site within the province of Newfoundland and Labrador.
4. Students are responsible for all travel and accommodation costs associated with the SPE.
5. Students who conduct themselves in such a manner as to cause their termination from the SPE site, including breaches in confidentiality, violation of policies and professional misconduct will be assigned a grade of FAL (fail) for that SPE.
6. Students are required to provide evidence of a valid certificate, normally, in St. John Ambulance or Canadian Red Cross Standard First Aid Level C that is valid for the duration of the SPE. Equivalent certificates will be considered and assessed on an individual basis for acceptability.
7. Students are required to complete three SPEs, each of four weeks duration, and one SPE of twelve weeks duration. The first three SPEs are completed at the end of the Winter semester in the first, second, and third years of the program. The final SPE is completed in the Winter semester of the final year of the program.
8. The number of hours per week of the SPE program will be as required by CCAPP standards.
9. Students will be evaluated on their performance during the SPE and on written assignments including workbooks, pharmaceutical care case work-ups and drug information requests. Students may have workbooks audited or they may be formally examined on material learned during the SPE period. The overall evaluation of SPEs will result in the assignment of one of the following grades: PWD (pass with distinction), PAS (pass), or FAL (fail).

#### 3.2 Registration as a Pharmacy Student

A student must be registered as a "Pharmacy Student" with the Newfoundland and Labrador Pharmacy Board. A student must be registered by September 30th of each academic year. As well, a student must be registered as a "Pharmacy Student" with the respective provincial or territorial licensing body prior to the commencement of Structured Practice Experiences. A student who fails to meet the requirements for licensing may be required to withdraw from the program.

### 4 Admission Regulations for the School of Pharmacy

In addition to meeting **UNIVERSITY REGULATIONS** students applying for admission for the program must meet the admission regulations of the School.

#### 4.1 General Information

1. Admissions will be to the first year of pharmacy studies.
2. Entry to the School is competitive for a limited number of placements. Priority is given to applicants who are bona fide residents of Newfoundland and Labrador. The final decision on admission rests with the Admissions Committee of the School.
3. The Admissions Committee considers each applicant's academic background and information on the applicant's personal characteristics and achievements as given by the applicant. Personal interviews, which may include both a written and oral component, may be required. Reports from referees may also be considered.
4. The School of Pharmacy does not require criminal record checks or other screening procedures as a condition of admission to its program. However, students should be aware that such record checks or other screening procedures may be required by agencies used by the University for clinical or structured practice experiences related to academic course assignments necessary for graduation. Such agencies may refuse to accept students on the basis of information contained in the record check or other screening procedure thus preventing the student from completing a practice experience or other clinical requirement. As a result, such students may not be eligible for promotion or graduation.

It is the students' responsibility to have such procedures completed as required and at their own expense.

The screening procedures of any given agency may change from time to time and are beyond the control of the University.

#### 4.2 Application Forms and Deadlines

1. Application forms are available in person from the School and the Office of the Registrar or through the School's website at [www.mun.ca/pharmacy](http://www.mun.ca/pharmacy). Application forms may also be obtained by writing the School of Pharmacy, Memorial University of Newfoundland, St. John's, NL A1B 3V6 or the Office of the Registrar, Admissions Office, Memorial University of Newfoundland, St.

John's, NL A1C 5S7.

2. All application forms and fees for admission to the program for the Bachelor of Science (Pharmacy) must be submitted to the Office of the Registrar of the University on or before the deadline of March 1 in any year. The program commences in the Fall semester.
3. Applications will be reviewed after the closing date by the Admissions Committee of the School. This Committee has the delegated authority of the School's Academic Council to admit or decline to admit applicants, following guidelines and procedures acceptable to that Council.
4. Each applicant is responsible for ensuring that all the required information for application is supplied to the Admissions Committee, and for providing any further information required by the Committee. An application will not be considered to be complete until all documentation has been received and appropriate fees paid.

### 4.3 Admission Requirements to the School

Applicants who are not currently students at Memorial University of Newfoundland must apply for admission to the University under the **Categories of Applicants, Admission Criteria and Other Information** outlined under **UNIVERSITY REGULATIONS - Admission/Readmission to the University (Undergraduate)**. In addition to meeting these regulations, applicants to the School must meet requirements as indicated below.

1. To be eligible for consideration an applicant shall have completed a minimum of 30 credit hours which have been taken or accepted for credit at a recognized university or university college.
2. An applicant is normally required to have completed each of the following courses or their equivalents. In the case of transfer students, the course equivalencies relate to courses taught at Memorial University of Newfoundland, St. John's campus.
  - Biology 1001 and 1002
  - Chemistry 1050 and 1051 or equivalent
  - Six credit hours at the 1000-level in English
  - Mathematics 1000 and 1001
  - Physics 1020 and 1021 or Physics 1050 and 1051
3. For students attending Grenfell Campus, the following course offerings are acceptable for admission to the School;
  - Biology 1001 and 1002
  - Chemistry 1200 and 1001
  - Six credit hours at the 1000-level in English
  - Mathematics 1000 and 1001
  - Physics 1020 and 1021, or Physics 1050 and 1051
4. Normally an application will not be considered from an applicant who cannot produce evidence that the above requirements have been met or will have been met by end of the Winter semester of the year in which admission is being sought.
5. An unsuccessful applicant who wishes to reapply for admission is required to submit the application forms relevant to the year of reapplication and will be required to enter into the competition for that year.

### 4.4 Acceptance Procedures

1. Notification of the decision of the Admissions Committee of the School will be made to applicants by the Dean of the School by letter. No other form of notification will be considered official.
2. The letter of acceptance will give the successful applicant 14 days from the date of the letter of notification in which to confirm acceptance of the placement offer. The signed intention to accept the offer must be accompanied by a deposit of \$100, which will be credited towards tuition fees. The deposit will be forfeited if the applicant subsequently declines the offer or fails to register. If no reply is received within 14 days, the offer by the School will be withdrawn and the applicant will be informed of this by letter.

## 5 Program Regulations - General Degree

### 5.1 Bachelor of Science (Pharmacy)

- The 176 credit hour Bachelor of Science (Pharmacy) degree requires 30 credit hours before admission to the program and 146 credit hours after admission to the program. The program includes four structured practice experiences, three of which are non-credit, with the other having 18 credit hours.
  - The program courses shall normally be taken in the academic terms in the sequence and course load as set out in **Table 1 Bachelor of Science (Pharmacy)**. Students wishing to change the sequence and/or reduce the course load required in the academic terms must obtain permission from the School's Committee on Undergraduate Studies.
  - Elective courses may be taken from any academic unit.

**Table 1 Bachelor of Science (Pharmacy)**

Term	Required Courses	Elective Courses
Courses required for admission as indicated under <b>Admission Requirements to the School</b>	Biology 1001 and 1002 Chemistry 1050 and 1051 or equivalent Any 6 credit hours at the 1000 level in English Mathematics 1000 and 1001 Physics 1020 and 1021 or Physics 1050 and 1051	
Fall Academic Term 1	Chemistry 2440 PHAR 2002 PHAR 2101 PHAR 2201 PHAR 2650 Psychology 1000	
Winter Academic Term 2	PHAR 2003 PHAR 2004 PHAR 201W PHAR 2102 PHAR 2202 PHAR 2203 PHAR 2651 Psychology 1001	
Fall Academic Term 3	Medicine 4300 PHAR 3003 PHAR 3111 PHAR 3203 PHAR 3205 PHAR 3650	
Winter Academic Term 4	PHAR 3006 PHAR 3009 PHAR 302W PHAR 3103 PHAR 3204 PHAR 3301 PHAR 3651	
Fall Academic Term 5	PHAR 4008 PHAR 4201 PHAR 4302 PHAR 4401 PHAR 4504 PHAR 4650	
Winter Academic Term 6	PHAR 403W PHAR 4402 PHAR 4503 PHAR 4505 PHAR 4651 Philosophy 2551 or the former Philosophy 2803	3 credit hours
Fall Academic Term 7	PHAR 5301 PHAR 5302 PHAR 5401 PHAR 5506 PHAR 5650	3 credit hours
Winter Academic Term 8	PHAR 500X	

## 6 Promotion Regulations

### 6.1 General Information

- The Committee on Undergraduate Studies will determine each student's promotion status at the end of each academic year.
- In addition to meeting the promotion regulations for the School students must meet the general academic regulations (undergraduate). For further information refer to **UNIVERSITY REGULATIONS - General Academic Regulations (Undergraduate)**.
- Success in the program depends on meeting the requirements of all terms.

### 6.2 Promotion Status

A student's promotion status at the end of each academic year will be in one of the following two categories:

#### 6.2.1 Clear Promotion

Clear Promotion means a student can proceed to the next academic year without restrictions.

- Students will receive a Clear Promotion from an academic year by obtaining an average of 65% and having obtained at least a pass in each course. A weighted average based on credit hours in the Bachelor of Science (Pharmacy) program courses will be calculated for determining eligibility for promotion. Neither promotion nor graduation will be permitted if a student has a numeric grade below 50% in any course in the program.
- Students completing PHAR 2102 must obtain a numeric grade of at least 70%.
- Students completing PHAR 201W, 302W, 403W, or 500X must obtain a grade of PAS or PWD in each course.
- Students must attain a passing grade in each elective, but these courses will not be included in calculating the student's average grade for the purposes of promotion, graduation, or academic awards.

#### 6.2.2 Promotion Denied

Promotion Denied indicates Clear Promotion is not achieved at the end of each academic year.

- A student with Promotion Denied status will normally be required to withdraw from the School.
  - A student who does not obtain a clear promotion may be permitted to repeat all or part of the academic year. If a student is required to repeat a year on the grounds of unsatisfactory performance, his or her performance in the repeated year must meet the conditions for Clear Promotion. If this standard is not met, the Committee on Undergraduate Studies may require the student to withdraw from the program.
  - Normally, the option to repeat a year on the grounds of academic difficulties can be offered only once during the student's Bachelor of Science (Pharmacy) program. This restriction may be waived if it has been demonstrated that the student's academic performance has been adversely affected by factors duly authenticated and acceptable to the Committee on Undergraduate Studies.
- A student with Promotion Denied status at the end of the final academic term will not be recommended for graduation until the student's status is changed to Clear Promotion.

### 6.3 Other Information

- Students may be required to withdraw from their program at any time, if, in the opinion of the School, they are unlikely to benefit from continued attendance.
- The Committee on Undergraduate Studies may require a student who is deemed unlikely to benefit from continued attendance in his/her course of study to withdraw conditionally. The Chair of the committee will advise the Dean of the School of the circumstances precipitating this action, the duration of the withdrawal and any conditions the student must fulfil during the withdrawal. The Dean may then recommend to the Registrar that the student is on conditional withdrawal. Upon completing the conditions, the student may be permitted re-entry to the program. If the conditions are not met, the student may be required to withdraw from the program.
- The School reserves the right to require a student to withdraw from the program at any time when acceptable cause is demonstrated. In such cases, the Dean, on behalf of the School, shall recommend such withdrawal to the Registrar who will then take appropriate action. Any such action is subject to the right of appeal by the student. An appeal should be made in writing clearly stating the basis for the appeal and should be directed in the first instance to the Registrar of the University. The Registrar, in consultation with the Dean, will determine whether or not the grounds stated are sufficient to warrant a formal hearing of the appeal.

### 6.4 Leave of Absence

- Upon completion of an academic year, a student in good standing may elect to withdraw temporarily from studies. Voluntary withdrawal at other times and for other reasons may be permitted in accordance with **UNIVERSITY REGULATIONS - General Academic Regulations (Undergraduate) - Registration**. In all cases, the intent to withdraw voluntarily should be discussed with the Dean. The Dean may then recommend to the Registrar that a student be permitted to withdraw for a stated period of time. At the end of this period, the student, in consultation with the Committee on Undergraduate Studies, should ensure that sufficient revision and preparatory work is undertaken to allow studies to be resumed readily. In the absence of good cause, any such student who does not resume studies on the specified date may be deemed to have left the program.

## 7 Supplementary and Deferred Examination Regulations

- Supplementary examinations may be permitted in some courses offered by the School of Pharmacy. Students seeking to write a supplementary midterm or final examination shall apply in writing by completing the "Application for Supplementary Examination" form which is available from the School's website at [www.mun.ca/pharmacy/undergrad/Policies\\_and\\_Procedures.php](http://www.mun.ca/pharmacy/undergrad/Policies_and_Procedures.php).
- This form must be submitted within seven days following release of midterm marks in the case of supplementary midterm examinations or within seven days following release of the final grades in the case of supplementary final examinations. The completed form should be submitted to the Dean's office for consideration.
- The transcript will indicate that the final grade was earned as a result of a supplementary examination. Course coordinators shall advise students in the course outline that such a notation will be made on the transcript.
- Students shall be permitted to write a maximum number of one supplementary examination (excluding Pharmacy Skills & Structured

Practice Experience (SPE) courses) during each academic year of the pharmacy program. For any one registration in a course, a student shall be permitted to write a final supplementary examination only once.

- For further details please refer to the School's Supplementary Examination Policy which is available at [www.mun.ca/pharmacy/undergrad/Policies\\_and\\_Procedures.php](http://www.mun.ca/pharmacy/undergrad/Policies_and_Procedures.php) or contact the Associate Dean of Undergraduate Studies.
- Memorial University of Newfoundland has official regulations regarding deferred final examinations, available at **UNIVERSITY REGULATIONS - General Academic Regulations (Undergraduate) - Exemptions From Final Examinations and Procedures for Applying to Write Deferred Examinations**. Deferred midterm examinations may be permitted in some courses offered by the School of Pharmacy. For details please refer to the School's Deferred Examination Policy which is available at [www.mun.ca/pharmacy/undergrad/Policies\\_and\\_Procedures.php](http://www.mun.ca/pharmacy/undergrad/Policies_and_Procedures.php) or contact the Associate Dean of Undergraduate Studies.

## 8 Waiver of School Regulations

A student has the right to request waiver of School regulations. A student wishing waiver of University academic regulations should refer to **UNIVERSITY REGULATIONS - General Academic Regulations (Undergraduate) - Waiver of Regulations**.

### 8.1 General Information

- The School reserves the right in special circumstances to modify, alter, or waive any School regulation in its application to individual students where merit and equity so warrant in the judgment of the Committee on Undergraduate Studies of the School.
- All requests must be submitted to the Committee on Undergraduate Studies of the School for consideration. A student requesting a waiver of a School regulation must submit the request in writing to the Chair of the Committee on Undergraduate Studies. Medical and/or other documentation to substantiate the request must be provided.
- Any waiver granted does not reduce the total number of credit hours required for the degree.

## 9 Appeal of Regulations

Any student whose request for waiver of School regulations has been denied has the right to appeal. For further information refer to **UNIVERSITY REGULATIONS - General Academic Regulations (Undergraduate) - Appeal of Regulations**.

- An applicant who has been denied admission has the right to appeal this decision of the Admissions Committee if it is felt by the applicant that the decision was reached on grounds other than those outlined in **Admission Regulations for the School of Pharmacy**. The appeal should be made in writing within fourteen days of the notification of the decision and should be directed to the Dean of the School. The letter should state clearly and fully the grounds for the appeal. If the Dean of the School, in consultation with the Registrar, judges the grounds to be sufficient, the formal appeals mechanism will be initiated.
- A student has the right to make a formal appeal against a decision of the Committee on Undergraduate Studies. However, this appeal cannot be made on the basis of the grades awarded in individual courses, as the student will normally have had the opportunity of contesting grades immediately after notification. A formal appeal by a student against the decision of the Committee must be made on grounds other than the grades awarded, e.g. default of procedure. This appeal should be made in writing, clearly stating the basis for the appeal and should be directed in the first instance to the Registrar of the University. The Registrar, in consultation with the Dean, will determine whether or not the grounds stated are sufficient to warrant a formal hearing of the appeal.

## 10 Course Descriptions

In accordance with *Senate's Policy Regarding Inactive Courses*, the course descriptions for courses which have not been offered in the previous three academic years and which are not scheduled to be offered in the current academic year have been removed from the following listing. For information about any of these inactive courses, please contact the Dean of the School.

All courses of the School are designated by PHAR and are restricted to students in the School of Pharmacy.

**2002 Anatomy and Physiology I** presents a survey of human anatomy and physiology throughout the lifespan. It includes aspects of cytology and histology that form a foundation for the practice of pharmacy. Special emphasis is given to the skeletal, muscular, nervous and endocrine systems. The course will include both the vocabulary and concepts of anatomy and physiology with the overall goal being the understanding of the interrelationships and integration of all systems from the cell to whole organism.

CR: Nursing 1002  
LH: 2; attendance is required

**2003 Anatomy and Physiology II** presents a survey of human anatomy and physiology throughout the lifespan. It includes aspects of cytology and histology that form a foundation for the practice of pharmacy. Special emphasis is given to the endocrine, circulatory, respiratory, urinary, digestive and reproductive systems. The course will include both the vocabulary and concepts of anatomy and physiology with the overall goal being the understanding of the interrelationships and integration of all systems from the cell to whole organism.

CR: Nursing 1012  
LH: 2; attendance is required  
PR: PHAR 2002

**2004 Introduction to Biochemistry** is an introduction to the major organic substances of living organisms, proteins, carbohydrates and lipids: their structure, analysis and biochemical function. Enzymes. Biochemistry of membranes: plasma membrane and specialized intracellular membranes.

Biochemistry of selected differentiated cells.  
CR: Biochemistry 2101  
OR: tutorials as required  
PR: Chemistry 2400 and 2401 or Chemistry 2440

**201W Structured Practice Experience I** is a structured practice experience in community pharmacy after completion of the first year which will provide an opportunity for students to apply their technical skills and introduce them to patient care activities. The structured practice experience is normally comprised of four weeks during May/June.

AR: attendance is required  
CH: 0  
LC: 0  
PR: successful completion of all courses in Academic Terms 1 & 2 of the program

**2101 Pharmacy Practice I** provides an introduction to the legal and professional framework of the practice of pharmacy. Pharmacy regulations in the dispensing of medications and provincial legislation that governs the practice of pharmacy will be the focus. Students will be introduced to core competencies of the profession including professionalism, interprofessionalism, pharmaceutical calculations, drug information and effective communication strategies for the provision of pharmacist care. Application of course content will occur in the concurrent course PHAR 2650.

CO: PHAR 2650

**2102 Pharmacy Practice II** continues the introduction to the legal and professional framework of the practice of pharmacy. The course will focus on federal legislation that governs the practice of pharmacy, drug information, patient education and methods to deal with challenging patient behaviours. Students will be introduced to pharmaceutical care and begin to develop a pharmacist care plan. Students will participate in interprofessional education (IPE) modules with students from other health related programs when such modules are available. The passing grade in this course is 70%, failing which the student may be required to withdraw from the program.

CH: 2  
CO: PHAR 2651  
LC: 2  
OR: tutorials 2 hours per week; attendance is required



**2201 Pharmaceutics I** provides an insight into a number of physicochemical basics and explains them within a pharmaceutical context. The course provides the basic foundation necessary for the study of pharmaceutical dosage forms, pharmacokinetics and bio-pharmaceutics.

LH: 3; attendance is required

PR: Mathematics 1000 and 1001; and Chemistry 1050 and 1051, or Chemistry 1200 and 1001, or equivalent

**2202 Pharmaceutics II** is designed to provide the student with an understanding of pharmaceutical dosage forms and their applications. It applies the principles taught in Pharmaceutics I to understand the design and components of the different pharmaceutical preparations.

LH: 3; attendance is required

PR: PHAR 2201

**2203 Pharmaceutical Analysis** is designed to introduce some important techniques and methods of analysis in pharmaceutical sciences. The laboratory exercises consist of both non-instrumental and instrumental analytical techniques that are widely employed in the analysis of pharmaceuticals.

CH: 2

LC: 2

LH: 3 hours every other week; attendance is required

PR: Chemistry 1050 and 1051 or Chemistry 1200 and 1001 or equivalent

**2650 Pharmacy Skills** provides an introduction to the skills necessary for pharmacy practice in order to meet the educational outcomes for the first year of the pharmacy program. This course is the first in a series of Pharmacy Skills courses, all of which require students to acquire and apply the knowledge, attitudes and skills necessary for the effective practice of the profession. Students will begin to develop abilities in communication, professionalism, critical thinking, problem-solving, teamwork and self-directed learning. Students will apply basic knowledge and skills in drug information, technology, interpersonal communications and pharmacy legislation to simulated practice situations. Students will develop public communication skills through the completion of a professional communications program. Activities in this course will complement material covered in the concurrent course PHAR 2101.

CO: all Academic Term 1 Pharmacy courses

CR: the former PHAR 2150

LC: 0

OR: practical sessions 3 hours per week; tutorials 1 hour per week; attendance is required

UL: not applicable to the Bachelor of Science (Pharmacy) program for students admitted prior to Fall 2011

**2651 Pharmacy Skills** provides an introduction to the skills necessary for pharmacy practice in order to meet the education outcomes for the first year of the pharmacy program. Students will continue to develop abilities in communication, professionalism, critical thinking, problem-solving, teamwork and self-directed learning. Pharmacy practice in the community pharmacy setting will be a focus. Students will develop dispensing, drug information and pharmaceutical calculations skills relevant to community pharmacy practice. Students will begin developing their patient interaction and patient education skills. Activities in this course will complement material covered in the concurrent PHAR 2102. Students will participate in interprofessional education (IPE) modules with students from other health related programs when such modules are available.

CO: all Academic Term 2 Pharmacy courses

CR: the former PHAR 2151

LC: 0

OR: practical sessions 3 hours per week; tutorials 1 hour per week; attendance is required

PR: PHAR 2101 and 2650

UL: not applicable to the Bachelor of Science (Pharmacy) program for students admitted prior to Fall 2011

**3003 Pathophysiology** examines the nature of disease, causes and effects, and alteration in structure and function of cells, inflammation, neoplasia, genetic and chromosomal diseases, healing and repair, stress and disease.

PR: PHAR 2003 or equivalent

**3006 Immunology** (same as PHAR 4105) is an introduction to the molecular and cellular basis of immunity and hypersensitivity. Manipulation of the immune system in the management and treatment of disease is discussed.

CR: PHAR 4105

PR: PHAR 2003

UL: not applicable to the Bachelor of Science (Pharmacy) program for students admitted prior to Fall 2011

**3009 Pharmacology** explores topics in general pharmacology including drugs used in the treatment of inflammatory diseases, renal pharmacology, anticoagulant and antithrombotic drugs, antihyperlipidemics, drugs used in the treatment of anemia, and endocrine pharmacology.

PR: Medicine 4300 or equivalent

**302W Structured Practice Experience II** is a structured practice experience in hospital pharmacy after completion of the second year which

will provide an opportunity for students to apply their technical skills and introduce them to patient care activities. The practical experience is normally comprised of four weeks during May/June.

AR: attendance is required

CH: 0

LC: 0

PR: successful completion of all courses in Academic Terms 3 & 4 of the program.

**3103 Microbiology of Infectious Diseases** examines the various types of micro-organisms (bacterial, viral, parasitic and fungal), the environment in which they are able to multiply and their relationship to human diseases. The classifications of their morphology, mode of reproduction and the metabolic process, the physiological and epidemiological principles of infectious diseases and their manifestations are discussed including the principles of immunization.

**3111 General Biochemistry** covers the catabolism of carbohydrates, lipids and amino acids. Mitochondria, chloroplasts and ATP synthesis. Biosynthesis of carbohydrates and lipids. Metabolic specialization of differentiated cells and tissues. Integration of metabolism.

CR: Biochemistry 3106

OR: tutorials as required

PR: PHAR 2004 or the former 3110 or Biochemistry 2101

**3203 Medicinal Chemistry I** presents topics covering the molecular basis of action, metabolism, and toxicity of drugs. It provides an orientation to medically important nuclei and their nomenclature, followed by principles of drug discovery and development. The relationship between molecular structure and biological action of drugs together with elementary molecular modelling, and theories related to receptors and drug action will be presented. Concepts of drug metabolism and the relevant metabolic pathways in relationship to drug inactivation and toxicity, along with the principles of drug latention and prodrugs is covered. The structures, selected physicochemical properties, mechanism of action, structure-activity relationships, toxic effects at molecular level, and metabolism of drugs including central nervous system.

CO: Medicine 4300 and PHAR 3003

OR: tutorials 1 hour per week; attendance is required

PR: Chemistry 2440 or Chemistry 2400 and 2401

**3204 Medicinal Chemistry II** is a continuation of Pharmacy 3203 and focuses on the structures, selected physicochemical properties, mechanism of action, structure-activity relationships, toxic effects at molecular level, and metabolism of different pharmacological classes of drugs including cholinergic agents, analgetic and anti-inflammatory agents, insulin and oral antidiabetic drugs, steroids and related compounds, antihyperlipidemic agents, histamine and antihistaminic agents, diuretic agents, angiotensin converting enzyme inhibitors and antagonists, and calcium channel blockers.

CO: PHAR 3009

OR: tutorials 1 hour per week; attendance is required

PR: PHAR 3203

**3205 Pharmaceutics III** consists of several units. The standards of good manufacturing practice will be introduced. Characteristics, preparation, quality assurance and delivery systems for sterile products will be covered. The basic principles governing the application of radiation and radioactive compounds in medical diagnosis and therapy will be discussed. The status of current biotechnology-based pharmaceuticals and biotechnology related matters will be addressed.

PR: PHAR 2202

**3301 Patient Care I** is an introductory course in patient care, especially in the areas of self-care and self-treatment and the role of the pharmacist. The regulatory environment of non-prescription products and the prevention and treatment of health conditions amenable to self-management will be discussed.

CO: PHAR 3009

PR: Medicine 4300

**3650 Pharmacy Skills** continues the development of the skills necessary for pharmacy practice in order to meet the educational outcomes for the second year of the pharmacy program. Students will continue to develop abilities in communication, professionalism, critical thinking, problem-solving, teamwork and self-directed learning. Pharmacy practice in the hospital setting will be a focus. Students will participate in sterile product preparation and practice drug information and pharmaceutical calculation skills relevant to hospital practice. Students will develop pharmacist care plans and will further develop their patient education skills. Scenarios will relate to the courses of study in the second year and draw on material studied in earlier years of the program. Students will participate in interprofessional education (IPE) modules with students from other health related programs when such modules are available.

CO: all Academic Term 3 Pharmacy courses

CR: the former PHAR 3150

LC: 0

OR: practical sessions 3 hours per week; tutorials 1 hour per week; attendance is required

UL: not applicable to the Bachelor of Science (Pharmacy) program for students admitted prior to Fall 2011

**3651 Pharmacy Skills** continues the development of the skills necessary for pharmacy practice in order to meet the educational outcomes for the second year of the pharmacy program. Students will continue to develop abilities in communication, professionalism, critical thinking, problem-solving, teamwork and self-directed learning. Students will participate in practice sessions necessary to develop an understanding of and skills required in patient assessment and patient education related to patient self-care. Students will build on their pharmacist care skills to meet patients' drug-related needs in uncomplicated patient scenarios and drug information skills to assess information needs. Scenarios will relate to the courses of study in the second year and draw on material studied in earlier years of the program. Students will participate in interprofessional education (IPE) modules with students from other health related programs when such modules are available.

CO: all Academic Term 4 Pharmacy courses

CR: the former PHAR 3151

LC: 0

OR: practical sessions 3 hours per week; tutorials 1 hour per week; attendance is required

PR: PHAR 3650

UL: not applicable to the Bachelor of Science (Pharmacy) program for students admitted prior to Fall 2011

**4008 Chemotherapy** presents the principles of infectious diseases and cancer chemotherapy. Topics to be explored include molecular structure profiles in relation to mechanism of action, drug resistance, and toxicity of antimicrobial, antiviral, and antineoplastic agents. Antimicrobial activity/spectrum of activity of antibacterials, antifungals, antimalarial, antituberculosis, and antiviral/antiretroviral agents will be discussed. The classification and mechanism of action of cancer chemotherapeutic agents will be presented. Pharmacokinetic considerations, adverse effects/toxicity, and drug interactions will be explored for these agents.

CH: 2

CO: PHAR 4105, PHAR 4401

LC: 2

OR: tutorials 1 hour per week

PR: Medicine 4300, PHAR 3009, 3103, 3203 and 3204

**403W Structured Practice Experience III** is a structured practice experience in community pharmacy after completion of the third year which will provide an opportunity for students to apply their technical skills and practice and participate in patient care activities. The practical experience is normally comprised of four weeks during May/June.

AR: attendance is required

CH: 0

LC: 0

PR: successful completion of all courses in Academic Terms 5 & 6 of the program

**4105 Immunology** (same as PHAR 3006) is an introduction to the molecular and cellular basis of immunity and hypersensitivity. Manipulation of the immune system in the management and treatment of disease is discussed.

CR: PHAR 3006

PR: PHAR 2003

UL: not applicable to the Bachelor of Science (Pharmacy) program for students admitted Fall 2011 or later

**4150 Pharmacy Skills** (same as PHAR 4650) continues the development of the skills necessary for pharmacy practice in order to meet the educational outcomes for the third year of the pharmacy program. Students will continue to develop abilities in communication, professionalism, critical thinking, problem-solving, teamwork and self-directed learning. Students will participate in practice sessions necessary to develop an understanding of and skills required in patient assessment. Students will build on their pharmacist care skills to meet patients' drug-related needs in more complex patient scenarios, drug information skills to assess information needs, and medication preparation and dispensing skills to optimize safe and accurate medication delivery. Scenarios will relate to the courses of study in the third year and draw on material studied in earlier years of the program. Students will participate in interprofessional education (IPE) modules with students from other health related programs when such modules are available.

CH: 1

CO: all Academic Term 5 Pharmacy courses

CR: PHAR 4650

LC: 0

OR: practical sessions 3 hours per week; tutorials 1 hour per week; attendance is required

UL: not applicable to the Bachelor of Science (Pharmacy) program for students admitted Fall 2011 or later

**4151 Pharmacy Skills** (same as PHAR 4651) continues the development of the skills necessary for pharmacy practice in order to meet the educational outcomes for the third year of the pharmacy program. Students will continue to develop abilities in communication, professionalism, critical thinking, problem-solving, teamwork and self-directed learning. Students will

participate in sessions that focus on ethical issues in pharmacy practice and communication with health care providers. Students will build on their patient assessment and pharmacist care skills to meet patients' drug-related needs in more complex patient scenarios and will use critical appraisal skills to respond to clinical questions. Scenarios will relate to the courses of study in the third year and draw on material studied in earlier years of the program. Students will participate in interprofessional education (IPE) modules with students from other health related programs when such modules are available.

CH: 1

CO: all Academic Term 6 Pharmacy courses

CR: PHAR 4651

LC: 0

OR: practical sessions 3 hours per week; tutorials 1 hour per week; attendance is required

PR: PHAR 4150

UL: not applicable to the Bachelor of Science (Pharmacy) program for students admitted Fall 2011 or later

**4201 Applied Pharmacokinetics** (same as the former PHAR 3206) is an introduction to biopharmaceutical and pharmacokinetic principles used in the selection, dosing, monitoring and evaluation of drug therapy. Application of these principles in evaluating drug literature and developing drug dosage regimens of selected classes of drugs for individual patients will be discussed.

CR: the former PHAR 3206

PR: Medicine 4300, PHAR 2202 and 3009

UL: not applicable to the Bachelor of Science (Pharmacy) program for students admitted prior to Fall 2011

**4301 Patient Care II** discusses the principles of health promotion and disease prevention and the role of the pharmacist.

CH: 1

CR: PHAR 4302

OR: tutorials 1 hour per week

UL: not applicable to the Bachelor of Science (Pharmacy) program for students admitted Fall 2011 or later

**4302 Patient Care II** discusses the principle roles of health systems and health policy with a special emphasis on pharmaceutical policy and its impact on the profession, the public and on the delivery of pharmaceutical care. The principles of health promotion and the role of the pharmacist will be discussed. Students will gain knowledge about health challenges facing society, how education affects health, the roles of the pharmacist in educating and promoting health to patients.

CH: 1

CR: PHAR 4301 and the former 3501

PR: PHAR 2101, 2102, and 3301

UL: not applicable to the Bachelor of Science (Pharmacy) program for students admitted prior to Fall 2011

**4401 Therapeutics I** is a part of a series that looks at the therapeutic management of common diseases. Topics may include but are not restricted to infectious diseases, hematology/oncology, and dermatology. For each disease state discussion will centre around several key issues including: the establishment of desired therapeutic outcomes; development of appropriate pharmacological and non-pharmacological therapeutic alternatives; factors to be considered to aid in the selection of an individualized therapeutic regimen; and the development of a monitoring plan to evaluate efficacy and safety.

CH: 6

CO: PHAR 4105, PHAR 4008

LC: 6

OR: tutorials 2 hours per week; attendance is required

PR: Medicine 4300, PHAR 3009 and 3206

**4402 Therapeutics II** is a part in a series that looks at the therapeutic management of common diseases. Topics may include but are not restricted to women's health, men's health, gastroenterology, musculoskeletal, neurological, respiratory disorders and transplantation. For each disease state discussion will centre around several key issues including: the establishment of desired therapeutic outcomes; development of appropriate pharmacological and non-pharmacological therapeutic alternatives; factors to be considered to aid in the selection of an individualized therapeutic regimen; and the development of a monitoring plan to evaluate efficacy and safety.

CH: 6

LC: 6

OR: tutorials 2 hours per week; attendance is required

PR: PHAR 4401

**4501 Pharmacy Research and Evaluation II** (same as PHAR 4504) introduces the biostatistical, pharmacoepidemiologic and pharmacoeconomic concepts and develops the skills necessary to the practice of research and evaluation methods in applied pharmacy. The understanding of such methods is an important prerequisite in the critical appraisal of the health literature and the undertaking of evidence-based clinical practice.

CR: PHAR 4504

PR: the former PHAR 3501

UL: not applicable to the Bachelor of Science (Pharmacy) program for students admitted Fall 2011 or later

**4502 Pharmacy Research and Evaluation III** (same as PHAR 4505) introduces students to principles of critical appraisal and provides opportunities to apply these principles to critique and evaluate current medical literature. Students will be assigned to a tutorial group, which will meet twice during the semester to critically appraise at least two recently published studies (journal club). Emphasis will be placed on appropriate application of critical appraisal skills and group discussion of impact of study findings on clinical practice. In addition, this course will also discuss drug utilization reviews and evaluations and the role of the pharmacist, as well as adverse drug event reporting and the role of the pharmacist.

CH: 1

CR: PHAR 4505

LC: 1

OR: tutorials 1 hour per week; attendance is required

PR: PHAR 4501

UL: not applicable to the Bachelor of Science (Pharmacy) program for students admitted Fall 2011 or later

**4503 Pharmacy Administration** introduces students to the basic principles of management as it relates to pharmacy practice. Topics will include human resources and financial management, marketing, strategic planning and the principles and issues associated with safe and appropriate drug distribution. These will be discussed from both a community and an institutional practice focus.

**4504 Pharmacy Research and Evaluation I** (same as PHAR 4501) introduces the biostatistical, pharmacoepidemiologic and pharmacoeconomic concepts and develops the skills necessary to the practice of research and evaluation methods in applied pharmacy. The understanding of such methods is an important prerequisite in the critical appraisal of the health literature and the undertaking of evidence-based clinical practice.

CR: PHAR 4501

UL: not applicable to the Bachelor of Science (Pharmacy) program for students admitted prior to Fall 2011

**4505 Pharmacy Research and Evaluation II** (same as PHAR 4502) introduces students to principles of critical appraisal and provides opportunities to apply these principles to critique and evaluate current medical literature. Students will be assigned to a tutorial group, which will meet twice during the semester to critically appraise at least two recently published studies (journal club). Emphasis will be placed on appropriate application of critical appraisal skills and group discussion of impact of study findings on clinical practice. In addition, this course will also discuss drug utilization reviews and evaluations and the role of the pharmacist, as well as adverse drug event reporting and the role of the pharmacist.

CH: 1

CR: PHAR 4502

LC: 1

OR: tutorials 1 hour per week; attendance is required

PR: PHAR 4504 or equivalent

UL: not applicable to the Bachelor of Science (Pharmacy) program for students admitted prior to Fall 2011

**4650 Pharmacy Skills** continues the development of the skills necessary for pharmacy practice in order to meet the educational outcomes for the third year of the pharmacy program. Students will continue to develop abilities in communication, professionalism, critical thinking, problem-solving, teamwork and self-directed learning. Students will participate in practice sessions necessary to develop an understanding of and skills required in patient assessment. Students will build on their pharmacist care skills to meet patients' drug-related needs in more complex patient scenarios, drug information skills to assess information needs, and medication preparation and dispensing skills to optimize safe and accurate medication delivery. Scenarios will relate to the courses of study in the third year and draw on material studies in earlier years of the program. Students will participate in interprofessional education (IPE) modules with students from other health related programs when such modules are available.

CO: all Academic Term 5 Pharmacy courses

CR: PHAR 4150

LC: 0

OR: practical sessions 3 hours per week; tutorials 1 hour per week; attendance is required

UL: not applicable to the Bachelor of Science (Pharmacy) program for students admitted prior to Fall 2011

**4651 Pharmacy Skills** continues the development of the skills necessary for pharmacy practice in order to meet the educational outcomes for the third year of the pharmacy program. Students will continue to develop abilities in communication, professionalism, critical thinking, problem-solving, teamwork and self-directed learning. Students will participate in sessions that focus on ethical issues in pharmacy practice and communication with health care providers. Students will build on their patient assessment and pharmacist care skills to meet patients' drug-related needs in more complex patient scenarios and will use critical appraisal skills to respond to clinical questions.

Scenarios will relate to the courses of study in the third year and draw on material studied in earlier years of the program. Students will participate in interprofessional education (IPE) modules with students from other health related programs when such modules are available.

CO: all Academic Term 6 Pharmacy courses

CR: PHAR 4151

LC: 0

OR: practical sessions 3 hours per week; tutorials 1 hour per week; attendance is required

PR: PHAR 4650

UL: not applicable to the Bachelor of Science (Pharmacy) program for students admitted prior to Fall 2011

**500X Structured Practice Experience IV** provides experience in clinical practice. Students will participate as members of the health care team. They will be responsible for providing pharmaceutical care to patients. Activities will include attending patient care rounds, providing in-services and drug information, and participating in case presentations. The structured practice experience is comprised of two six week modules.

AR: attendance is required

CH: 18

LC: 0

PR: successful completion of all course requirements for the degree and Clear Promotion

**5011 Pharmaceutical Biotechnology** - inactive course.

**5012 Pharmaceutical Analysis** - inactive course.

**5013 Hospital Pharmacy Administration** - inactive course.

**501A/B Pharmaceutical Research** - inactive course.

**5150 Pharmacy Skills** (same as PHAR 5650) continues the development of the skills necessary for pharmacy practice in order to meet the educational outcomes for the fourth year of the pharmacy program. Students will continue to develop abilities in communication, professionalism, critical thinking, problem-solving, teamwork and self-directed learning. Students will build on their pharmacist care skills to meet patients' drug-related needs in patients with multiple drug related problems. Refinement of verbal and written communication skills will be a focus. Scenarios will relate to the courses of study in the fourth year and draw on material studied in earlier years of the program. Students will participate in interprofessional education (IPE) modules with students from other health related programs when such modules are available.

CH: 1

CO: all Academic Term 7 Pharmacy courses

CR: PHAR 5650

LC: 0

OR: practical sessions 3 hours per week; tutorials 1 hour per week; attendance is required

UL: not applicable to the Bachelor of Science (Pharmacy) program for students admitted Fall 2011 or later

**5301 Clinical Toxicology** covers the toxicology and clinical management of toxicity associated with common medications.

CH: 2

CO: PHAR 5401

LC: 2

**5302 Patient Care III** focuses on pharmaceutical care considerations in special patient populations (e.g., geriatrics, neonates, pediatrics, pregnancy and lactation, critically ill, etc.). Implementation of pharmaceutical care in hospital, ambulatory and community practice settings will be discussed.

CO: PHAR 5401

OR: tutorials 1 hour per week; attendance is required

**5303 Patient Care IV** provides the student with a basic understanding of supplements natural health products and will focus on pharmaceutical care considerations in using these products for the therapeutic management of common diseases.

CH: 2

LC: 2

OR: tutorials 2 hours per week; attendance is required

UL: not applicable to the Bachelor of Science (Pharmacy) program for students admitted Fall 2011 or later

**5401 Therapeutics III** is part in a series that looks at the therapeutic management of common diseases. Topics may include but are not restricted to endocrine, psychiatric, renal and cardiovascular disorders. For each disease state discussion will centre around several key issues including: the establishment of desired therapeutic outcomes; development of appropriate pharmacological and non-pharmacological therapeutic alternatives; factors to be considered to aid in the selection of an individualized therapeutic regimen; and the development of a monitoring plan to evaluate efficacy and safety.

CH: 6

LC: 6

OR: tutorials 2 hours per week

PR: PHAR 4402

**5501 Pharmacy Research and Evaluation IV** (same as PHAR 5506) discusses the principles of critical appraisal and provides opportunities to apply these principles to critique and evaluate current medical literature. Students will be assigned to a tutorial group, which will meet twice during the semester to critically appraise at least two recently published studies. Emphasis will be placed on appropriate application of critical appraisal skills and group discussion of impact of study findings on clinical practice.

CH: 1

CR: PHAR 5506

LC: 0

OR: tutorials 1 hour per week

PR: PHAR 4502

UL: not applicable to the Bachelor of Science (Pharmacy) program for students admitted Fall 2011 or later

**5506 Pharmacy Research and Evaluation III** (same as PHAR 5501) discusses the principles of critical appraisal and provides opportunities to apply these principles to critique and evaluate current medical literature. Students will be assigned to a tutorial group, which will meet twice during the semester to critically appraise at least two recently published studies. Emphasis will be placed on appropriate application of critical appraisal skills and group discussion of impact of study findings on clinical practice.

CH: 1

CR: PHAR 5501

LC: 0

OR: tutorials 1 hour per week

PR: PHAR 4505 or equivalent

UL: not applicable to the Bachelor of Science (Pharmacy) program for students admitted prior to Fall 2011

**5650 Pharmacy Skills** (same as PHAR 5150) continues the development of the skills necessary for pharmacy practice in order to meet the educational outcomes for the fourth year of the pharmacy program. Students will continue to develop abilities in communication, professionalism, critical thinking, problem-solving, teamwork and self-directed learning. Students will build on their pharmacist care skills to meet patients' drug-related needs in patients with multiple drug related problems. Refinement of verbal and written communication skills will be focus. Scenarios will relate to the courses of study in the fourth year and draw on material studies in earlier years of the program. Students will participate in interprofessional education (IPE) modules with students from other health related programs when such modules are available.

CO: all Academic Term 7 Pharmacy courses

CR: PHAR 5150

LC: 0

OR: practical sessions 3 hours per week; tutorials 1 hour per week; attendance is required

UL: not applicable to the Bachelor of Science (Pharmacy) program for students admitted prior to Fall 2011