



<p><b>1.0 Degree Title</b> Specify the two degrees for concurrent degree programs</p> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">B.Sc. in Pharmacology</div> <p><b>1.1 Major (Legacy= Subject) (30-char. max.)</b></p> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Pharmacology</div> <p><b>1.2 Concentration (Legacy = Concentration/Option)</b> If applicable (30 char. max.)</p> <div style="border: 1px solid black; height: 20px; margin-bottom: 5px;"></div> <p><b>1.3 Minor (with Concentration, if applicable)</b> (30 char. max.)</p> <div style="border: 1px solid black; height: 20px; margin-bottom: 5px;"></div> <p><b>1.4 Category</b></p> <table style="width: 100%; border: none;"> <tr> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Faculty Program (FP)  <input checked="" type="checkbox"/> Major  <input type="checkbox"/> Joint Major  <input type="checkbox"/> Major Concentration (CON)  <input type="checkbox"/> Minor  <input type="checkbox"/> Minor Concentration (CON)         </td> <td style="width: 50%; vertical-align: top;"> <input type="checkbox"/> Honours (HON)  <input type="checkbox"/> Joint Honours Component (HC)  <input type="checkbox"/> Internship/Co-op  <input type="checkbox"/> Thesis (T)  <input type="checkbox"/> Non-Thesis (N)  <input type="checkbox"/> Other            Please specify  <div style="border: 1px solid black; height: 20px; margin-top: 5px;"></div> </td> </tr> </table> <p><b>1.5 Complete Program Title</b></p> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Major in Pharmacology</div>	<input type="checkbox"/> Faculty Program (FP) <input checked="" type="checkbox"/> Major <input type="checkbox"/> Joint Major <input type="checkbox"/> Major Concentration (CON) <input type="checkbox"/> Minor <input type="checkbox"/> Minor Concentration (CON)	<input type="checkbox"/> Honours (HON) <input type="checkbox"/> Joint Honours Component (HC) <input type="checkbox"/> Internship/Co-op <input type="checkbox"/> Thesis (T) <input type="checkbox"/> Non-Thesis (N) <input type="checkbox"/> Other Please specify <div style="border: 1px solid black; height: 20px; margin-top: 5px;"></div>	<p><b>2.0 Administering Faculty/Unit</b></p> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Faculty of Science</div> <p><b>Offering Faculty/Department</b></p> <div style="border: 1px solid black; padding: 2px; margin-bottom: 5px;">Faculty of Medicine / Dept. of Pharmacology &amp; Therapeutics</div> <p><b>3.0 Effective Term of revision or retirement</b> Please give reasons in 5.0 "Rationale" in the case of retirement (Ex. Sept. 2004 = 200409)      <input type="checkbox"/> Retirement</p> <p>Term: <div style="border: 1px solid black; padding: 2px; display: inline-block;">201509</div></p> <p><b>4.0 Existing Credit Weight</b>      <b>Proposed Credit Weight</b></p> <div style="display: flex; justify-content: space-between; margin-bottom: 5px;"> <div style="border: 1px solid black; padding: 2px; width: 45%;">65 credits</div> <div style="border: 1px solid black; padding: 2px; width: 45%; background-color: yellow;">67 credits</div> </div> <p><b>5.0 Rationale for revised program</b></p> <div style="border: 1px solid black; padding: 5px; background-color: yellow;"> <p>The program has been revised to add two PHAR 200 levels courses in U1 so that entry level students have the opportunity to be exposed to Pharmacology and to meet Pharmacology faculty members in their first year in the program. Additional U3 500 level courses have been created to provide more choices to students in their final year. These new courses should have an impact on class sizes, which have been increasing to the extent that they decrease the opportunity for interactions and limit the format of some of these courses.</p> </div>
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<p><b>6.0 Revised Program Description (Maximum 150 words)</b></p> <div style="border: 1px solid black; padding: 5px; min-height: 200px;"> <p>Proposed:</p> <p>This program incorporates extensive studies in Pharmacology with a strong component of related biomedical sciences, providing a solid preparation for employment opportunities or for entry into graduate or professional training programs. Students must consult the <b>Student Affairs Coordinator upon entering the program and every year to verify courses and progress.</b></p> <p>Existing:</p> <p>This program incorporates extensive studies in Pharmacology with a strong component of related biomedical sciences, providing a solid preparation for employment opportunities or for entry into graduate or professional training programs. Students must consult an adviser upon entering the program and at the beginning of U2 to verify courses and progress. Additional consultation at regular intervals is encouraged.</p> </div>			

## 7.0 List of existing program and proposed program

Existing program (list courses as follows: Subj Code/Crse Num, Title, Credit weight, under the headings of: Required Courses, Complementary Courses, Elective Courses)

### U1 Required Courses (22 credits)

- BIOL 200 Molecular Biology (3 credits)
- BIOL 202 Basic Genetics (3 credits)
- CHEM 212 Introductory Organic Chemistry 1 (4 credits)
- CHEM 222 Introductory Organic Chemistry 2 (4 credits)
- PHGY 209 Mammalian Physiology 1 (3 credits)
- PHGY 210 Mammalian Physiology 2 (3 credits)
- PHGY 212 Introductory Physiology Laboratory 1 (1 credit)
- PHGY 213 Introductory Physiology Laboratory 2 (1 credit)

### U2 Required Courses (16 credits)

- BIOC 311 Metabolic Biochemistry (3 credits)
- BIOL 301 Cell and Molecular Laboratory (4 credits)
- PHAR 300 Drug Action (3 credits)
- PHAR 301 Drugs and Disease (3 credits)
- PHAR 303 Principles of Toxicology (3 credits)

### U3 Required Courses (12 credits)

- PHAR 503 Drug Discovery and Development 1 (3 credits)
- PHAR 558 Pharmacology Selected Topics (3 credits)
- PHAR 562 General Pharmacology 1 (3 credits)
- PHAR 563 General Pharmacology 2 (3 credits)

### Complementary Courses (15 credits)

#### 15 credits selected as follows:

3 credits selected from (usually in Year 1):

- ANAT 212 Molecular Mechanisms of Cell Function (3 credits)
- BIOC 212 Molecular Mechanisms of Cell Function (3 credits)
- BIOL 201 Cell Biology and Metabolism (3 credits)

3 credits selected from (usually in Year 2):

- CHEM 203 Survey of Physical Chemistry (3 credits)
- CHEM 204 Physical Chemistry/Biological Sciences 1 (3 credits)

3 credits selected from (usually in Year 2):

- BIOL 373 Biometry (3 credits)
- MATH 203 Principles of Statistics 1 (3 credits)
- PSYC 204 Introduction to Psychological Statistics (3 credits)

Proposed program (list courses as follows: Subj Code/Crse Num, Title, Credit weight, under the headings of: Required Courses, Complementary Courses, Elective Courses)

### U1 Required Courses (24 credits)

- BIOL 200 Molecular Biology (3 credits)
- BIOL 202 Basic Genetics (3 credits)
- CHEM 212 Introductory Organic Chemistry 1 (4 credits) \*
- CHEM 222 Introductory Organic Chemistry 2 (4 credits) \*
- PHGY 209 Mammalian Physiology 1 (3 credits)
- PHGY 210 Mammalian Physiology 2 (3 credits)
- PHGY 212 Introductory Physiology Laboratory 1 (1 credit)
- PHGY 213 Introductory Physiology Laboratory 2 (1 credit)
- PHAR 200 Introduction to Pharmacology 1 (1 credit)
- PHAR 201 Introduction to Pharmacology 2 (1 credit)

\* Students who have taken the equivalent of CHEM 212, CHEM 222, and/or MATH 203 in CEGEP (as defined at: <http://www.mcgill.ca/students/transfercredit/prospective/cegep>) are exempt and may not take these courses at McGill. Students must replace these credits with appropriate complementary course credits to satisfy the total credit requirements for their degree.

### U2 Required Courses (16 credits)

- BIOC 311 Metabolic Biochemistry (3 credits)
- BIOL 301 Cell and Molecular Laboratory (4 credits)
- PHAR 300 Drug Action (3 credits)
- PHAR 301 Drugs and Disease (3 credits)
- PHAR 303 Principles of Toxicology (3 credits)

### Complementary Courses (27 credits)

#### 15 credits selected as follows:

3 credits selected from (usually in Year 1):

- ANAT 212 Molecular Mechanisms of Cell Function (3 credits)
- BIOC 212 Molecular Mechanisms of Cell Function (3 credits)
- BIOL 201 Cell Biology and Metabolism (3 credits)

3 credits, one of (usually in Year 2):

- CHEM 203 Survey of Physical Chemistry (3 credits)
- CHEM 204 Physical Chemistry/Biological Sciences 1 (3 credits)

3 credits selected from (usually in Year 2):

- BIOL 373 Biometry (3 credits)
- MATH 203 Principles of Statistics 1 (3 credits) \*
- PSYC 204 Introduction to Psychological Statistics (3 credits)

3 credits, one of (usually in Year 3):

- PHAR 503 Drug Discovery and Development 1 (3 credits)
- PHAR 505 Structural Pharmacology (3 credits)

3 credits, one of (usually in Year 3):

- PHAR 562 Neuropharmacology (3 credits)
- PHAR 563 Endocrine Pharmacology (3 credits)

**6 credits selected from the following upper-level science courses:**

Committee approval is required to substitute an upper-level science course not in the list below.

[PHAR 599D1](#) and [PHAR 599D2](#) are taken together.

\* Note: Students may take either ANAT 458 or BIOC 458.

- ANAT 321 Circuitry of the Human Brain (3 credits)
- ANAT 322 Neuroendocrinology (3 credits)
- ANAT 365 Cellular Trafficking (3 credits)
- ANAT 458 Membranes and Cellular Signaling (3 credits) \*
- BIOC 312 Biochemistry of Macromolecules (3 credits)
- BIOC 450 Protein Structure and Function (3 credits)
- BIOC 454 Nucleic Acids (3 credits)
- BIOC 458 Membranes and Cellular Signaling (3 credits) \*
- BIOL 300 Molecular Biology of the Gene (3 credits)
- BIOL 303 Developmental Biology (3 credits)
- BIOL 306 Neural Basis of Behaviour (3 credits)
- BIOL 314 Molecular Biology of Oncogenes (3 credits)
- BIOT 505 Selected Topics in Biotechnology (3 credits)
- CHEM 302 Introductory Organic Chemistry 3 (3 credits)
- CHEM 334 Advanced Materials (3 credits)
- CHEM 382 Organic Chemistry: Natural Products (3 credits)
- CHEM 502 Advanced Bio-Organic Chemistry (3 credits)
- CHEM 503 Drug Design and Development 1 (3 credits)
- CHEM 504 Drug Design and Development 2 (3 credits)
- CHEM 522 Stereochemistry (3 credits)
- CHEM 552 Physical Organic Chemistry (3 credits)
- EPIB 501 Population Health and Epidemiology (3 credits)
- EXMD 401 Physiology and Biochemistry Endocrine Systems (3 credits)
- EXMD 504 Biology of Cancer (3 credits)
- EXMD 511 Joint Venturing with Industry (3 credits)
- MIMM 387 The Business of Science (3 credits)
- MIMM 414 Advanced Immunology (3 credits)
- NEUR 310 Cellular Neurobiology (3 credits)
- PATH 300 Human Disease (3 credits)
- PHAR 504 Drug Discovery and Development 2 (3 credits)
- PHAR 599 D1 Pharmacology Research Project (3 credits)
- PHAR 599 D2 Pharmacology Research Project (3 credits)
- PHGY 311 Channels, Synapses & Hormones (3 credits)
- PHGY 312 Respiratory, Renal, & Cardiovascular Physiology (3 credits)
- PHGY 313 Blood, Gastrointestinal, & Immune Systems Physiology (3 credits)
- PHGY 314 Integrative Neuroscience (3 credits)
- PHGY 520 Ion Channels (3 credits)
- PSYC 302 The Psychology of Pain (3 credits)
- PSYC 311 Human Cognition and the Brain (3 credits)
- PSYT 301 Issues in Drug Dependence (3 credits)
- PSYT 455 Neurochemistry (3 credits)
- PSYT 500 Advances: Neurobiology of Mental Disorders (3 credits)
- REDM 410 Writing Research Articles (3 credits)

**12 credits selected from the following upper-level science courses:**

Committee approval is required to substitute an upper-level science course not in the list below.

[PHAR 599D1](#) and [PHAR 599D2](#) are taken together.

\* Note: Students may take either ANAT 458 or BIOC 458.

- ANAT 321 Circuitry of the Human Brain (3 credits)
- ANAT 322 Neuroendocrinology (3 credits)
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- CHEM 503 Drug Design and Development 1 (3 credits)
- CHEM 504 Drug Design and Development 2 (3 credits)
- CHEM 522 Stereochemistry (3 credits)
- CHEM 552 Physical Organic Chemistry (3 credits)
- EPIB 501 Population Health and Epidemiology (3 credits)
- EXMD 401 Physiology and Biochemistry Endocrine Systems (3 credits)
- EXMD 504 Biology of Cancer (3 credits)
- EXMD 511 Joint Venturing with Industry (3 credits)
- MIMM 387 The Business of Science (3 credits)
- MIMM 414 Advanced Immunology (3 credits)
- NEUR 310 Cellular Neurobiology (3 credits)
- PATH 300 Human Disease (3 credits)
- PHAR 504 Drug Discovery and Development 2 (3 credits)
- PHAR 508 Drug Discovery and Development 3 (3 credits)
- PHAR 562 Neuropharmacology (3 credits)
- PHAR 563 Endocrine Pharmacology (3 credits)
- PHAR 565 Epigenetic Drugs and Targets (3 credits)
- PHAR 599 D1 Pharmacology Research Project (3 credits)
- PHAR 599 D2 Pharmacology Research Project (3 credits)
- PHGY 311 Channels, Synapses & Hormones (3 credits)
- PHGY 312 Respiratory, Renal, & Cardiovascular Physiology (3 credits)
- PHGY 313 Blood, Gastrointestinal, & Immune Systems Physiology (3 credits)
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- PSYT 455 Neurochemistry (3 credits)
- PSYT 500 Advances: Neurobiology of Mental Disorders (3 credits)
- REDM 410 Writing Research Articles (3 credits)

8.0 Consultation with Related Units  Yes  No Financial Consult  Yes  No

Attach list of consultations

9. Approvals

Routing Sequence	Name	Signature	Date
Department	Dr. Gerhard Multhaup		
Curric/Acad Committee	Dr. Barbara Hales		
Faculty 1			
Faculty 2			
Faculty 3			
CGPS			
SCTP			
APC			
Senate			

Submitted by

Name	Chantal Grignon	To be completed by ARR:
Phone	514-398-3623	CIP Code
Email	chantal.grignon@mcgill.ca	
Submission Date		

10. FQRSC (Research) Indicator (for GPS): Yes No