Accelerated Dual Degree BS in Neuroscience/MSPGx

The Neuroscience Baccalaureate and Pharmacogenomics Masters programs at Western New England University have collaborated to offer a program unique to western Massachusetts for those students interested in attaining a Bachelor of Science in Neuroscience (BSNS) and furthering their career with an in-person Master of Science in Pharmacogenomics (MSPGx) (also available as a hybrid pathway, MSPGx-HP). The BSNS-MSPGx(-HP) dual degree option is designed for the course-intensive Neuroscience program student. This is a dual degree program, where students completing the requirements for each program will receive two separate degrees.

Students can earn both the BSNS degree and the MSPGx(-HP) degree within 5.3 years (i.e., 5 years and 1 summer semester) of entry as an undergraduate. Students admitted by WNE Admissions as undergraduates are only admitted into the BS degree portion of the program. Transition into the MSPGx program is not automatic, nor is acceptance into the MSPGx program guaranteed, but requires application and acceptance into the MSPGx program. The MSPGx program admission requirements can be found in the "Master of Science in Pharmacogenomics" program description in this catalogue.

Students in good standing in the Neuroscience major, whom are on track to complete the bulk of the required (not elective) courses of their major within three years (including general university requirements), are eligible to apply for admission to the MSPGx degree program during their junior year after December 1. Candidates must successfully submit their application materials for admission consideration to the MSPGx program.

After successfully completing the fourth year of undergraduate coursework, students will be awarded a Bachelor of Science degree in Neuroscience, assuming all degree requirements have been met (including the 30 hours of 300-level or above credit requirement and the 120 minimum credit rule). After completing the summer semester of the MSPGx program, assuming all the degree requirements have been met (38 credits), students will be awarded the Master of Science in Pharmacogenomics.

There will be cross-credits between the two programs, i.e., courses for which credit will apply to the completion of both degrees. In the fourth year of undergraduate coursework, students admitted to the MSPGx program will take up to four 2-3 credit MSPGx courses (one or two in the fall and one or two in the spring), which can potentially fulfill NSCI or GEN elective requirements. Up to 11 credits of (Fall and Spring) MSPGx courses (with some exceptions) will be accepted into the BS Neuroscience program as follows:

- The courses PHRSC 551 (Introduction to Genetics and Genetic Counseling), PHAR 513 (Biochemistry), PHAR 522 (Pathophysiology), PHAR 523 (Medical Genetics & Pharmacogenomics) can fulfill NSCI or GEN elective requirements, but only if the student did not already take a similarly-titled course as part of their undergraduate degree program. If the student already took such a course, the graduate course credits cannot count towards the undergraduate degree. Thus, when students begin the MSPGx program coursework, they will already have completed two to four of the required MSPGx courses. In addition, alumni enrolled in a graduate program can take two free 3 credit courses, all together saving dual degree students time and costs.

Students in the Neuroscience major that either (a) do not meet the MSPGx program admission requirements during their junior year, or (b) elect not to apply for admission to the MSPGx program at that time, remain eligible to apply for admission as part of the general applicant pool following four years of University study and completion of a bachelor's degree.

Degree Requirements

BS Neuroscience Curriculum Years – 120 Total Credit hours over the First 4 Years

Meet with your faculty advisor to select the proper order and courses to take in the first 3 years, so as to incorporate some or all of the below listed MSPGx courses in the 4th year. While it is not required, it is recommended that students considering completing the Neuroscience-MSPGx dual degree complete certain coursework prior to entering the 5th year of the program. These courses include at least Calculus I, Organic chemistry, Genetics, and Anatomy & Physiology in addition to other required Neuroscience major course requirements. Students will also meet with the MSPGx Program Coordinator prior to admission to the dual degree, as well as to decide which of the below courses they will take as a 4th year undergraduate.

Fall - PHAR 513	Biochemistry	3 cr.
Fall – PHRSC 551	Introduction to Genetics and Genetic Counseling	3 cr.
Spring - PHAR 522	Pathophysiology	3 cr.
Spring – PHAR 523	Medical Genetics and Pharmacogenomics	2 cr.

These courses may be offered as in person and/or virtual sections, either section can be selected depending on preference and undergraduate coursework schedules.

Suggested Course Sequence

Freshman Year BS Neuroscience - Fall Semester

BIO 107	General Biology I	3 cr.
BIO 117	General Biology Laboratory I	1 cr.
BLUE 100	BLUE Course	1 cr.
MATH 109	Precalculus Mathematics	3 cr.
	OR	
MATH 123	Calculus I for Management, Life, and Social Sciences	3 cr.
GBD XXX	Golden Bear Discovery / GOLD	3 cr.
NSCI 212	Introduction to Behavioral Neuroscience	3 cr.

Subtotal: 14

Freshman Year BS Neuroscience - Spring Semester

PSY 101	Introduction to Psychology	3 cr.
ENG 132	English Composition I	3 cr.
BIO 108	General Biology II	3 cr.
BIO 118	General Biology Laboratory II	1 cr.
MATH 120	Intro Statistics for the Arts & Sciences	3 cr.
	OR	
MATH 124	Calculus II for Management, Life, and Social Sciences	3 cr.
NSCI 224	Sensation and Perception	3 cr.

Subtotal: 16

Sophomore Year BS Neuroscience - Fall Semester

ENGL 133	English Composition II	3 cr.
NSCI 267	Neurobiology	4 cr.
CHEM 105	General Chemistry I	4 cr.
GBD XXX	Golden Bear Discovery	3 cr.

Subtotal: 14

Sophomore Year BS Neuroscience - Spring Semester

NSCI 232	Research Methods in Neuroscience	3 cr.
CHEM 106	General Chemistry II	4 cr.
NSCI 2XX-4XX	Neuroscience Elective	3 cr.
GBD XXX	Golden Bear Discovery	3 cr.
GBD XXX	Golden Bear Discovery	3 cr.

Subtotal: 16

Junior Year BS Neuroscience - Fall Semester

NSCI 312	Cognitive Neuroscience	3 cr.
NSCI 405	Seminar in Neuroscience	3 cr.
NSCI 2XX-4XX	Neuroscience Elective	3 cr.
NSCI 3XX/4XX	Neuroscience Elective	3 cr.
PSY 207	Statistics for the Behavioral Sciences	3 cr.

Subtotal: 15

Junior Year BS Neuroscience - Spring Semester

NSCI 385	Neurodevelopment	3 cr.
NSCI 2XX-4XX	Neuroscience Elective	3 cr.
NSCI 3XX/4XX	Neuroscience Elective	3 cr.
GEN XXX	General Elective	3 cr.
GEN XXX	General Elective	3 cr.

Subtotal: 15

Senior Year BS Neuroscience - Fall Semester

NSCI 3XX/4XX	Neuroscience Elective	3 cr.
GEN XXX	General Elective	3 cr.
GEN 3XX	General Elective	3 cr.
PHAR 513	*Biochemistry*	*3 cr.*
PHRSC 551	*Introduction to Genetics and Genetic Counseling*	*3 cr.*

Italicized MSPGx courses may be taken as a senior.

Subtotal: 15

Senior Year BS Neuroscience - Spring Semester

NSCI 3XX/4XX	Neuroscience Elective	3 cr.
GEN XXX	General Elective	3 cr.
GEN XXX	General Elective	1 cr.
GEN 3XX	General Elective	3 cr.
PHAR 522	*Pathophysiology*	*3 cr.*
PHAR 523	*Medical Genetics and Pharmacogenomics*	*2 cr.*

Italicized MSPGx courses may be taken as a senior.

Subtotal: 15

MSPGx Curriculum Years – 27-33 Total Credit Hours over the Last 1.3 Years

MSPGx - Fall Semester

PHAR 513	*Biochemistry*	*3 cr.*
PHRSC 529	Responsible Conduct of Research	3 cr.
PHRSC 515	Principles of Pharmacology	3 cr.
PHRSC 510	Seminar & Journal Club 1	1 cr.
PHRSC 527	Data Analysis & Biostatistics	3 cr.
PHRSC 551	*Introduction to Genetics and Genetic Counseling*	*3 cr.*
PHRSC 526	Analytical Techniques Lab	1 cr.

Italicized courses are those that may have been taken as a 4th year undergraduate.

Subtotal: 11-14

MSPGx - Spring Semester

PHAR 522	*Pathophysiology*	*3 cr.*
PHAR 526	Pharmacy Outcomes	2 cr.
PHAR 523	*Medical Genetics and Pharmacogenomics*	*2 cr.*
PHRSC 552	Applied Genetics, Pharmacokinetics, and PGx	2 cr.
PHRSC 560	Genetic Research and Bioinformatics	3 cr.
PHRSC 557	Mechanisms of Drug Action	3 cr.

Italicized courses are those that may have been taken as a 4th year undergraduate.

Subtotal: 10-13

First Year MSPGx - Summer Semester

PHRSC 558	Pharmacogenomics Laboratory Experience	3 cr.	Two full time 3-week blocks offered during 1st summer session*
PHRSC 559	Pharmacogenomics Clinical Experience	3 cr.	Two full time 3-week blocks offered during 2nd summer session*

* Blocks will be filled on a first come first served basis. **Subtotal: 6**

MSPGx Degree completion requirements:

1) All courses passed (“C” or better), with no more than two courses with a grade of “C” or “C+”; and
2) Attain an overall grade point average of 3.0 or higher.

BS-Neuroscience Total: 120 credits
MSPGx Total: 38 credits