Sample Program for "3+1" Nuclear Medicine Technology with Froedtert Hospital

Freshman					
Fall			Spring		
Course		Credits	Course		Credits
CHE161	General Chemistry 1	4	CHE162	General Chemistry 2	4
CHE168	General Chemistry Lab 1	1	CHE169	General Chemistry Lab 2	1
NMT490	Job shadowing / internship [1]	1	BIO202	Principles of Biology 2	4
MAT117	Statistics	3	MAT118	College Algebra (or higher)	3
XXX	Gen Ed (ENG101 - writing)	3	XXX	Gen Ed (COM101 - speaking)	3
XXX	Gen Ed	3	XXX	Gen Ed	1
		15			16
Sophomore					
Fall			Spring		
BIO201	Principles of Biology 1	4	NMT101	Foundations of Radiation Science[2]	3
BIO225	Anatomy & Physiology 1	4	BIO255	Anatomy & Physiology 2	4
BIO323/223	Medical Terminology	2-3	XXX	Gen Ed	3
CHE221	Organic Chemistry 1	3	XXX	Gen Ed	3
XXX	Gen Ed	1	XXX	Elective	3
		15-16			16
Junior					
Fall			Spring		
BIO235	Sectional Anatomy	2	BIO331	Cell Biology	4
BIO354	Immunology	3	PHY203	Atoms, Nuclei and Matter	3
BIO355	Pathophysiology	3	XXX	Gen Ed	3
XXX	Gen Ed	3	XXX	Gen Ed	3
XXX	Gen Ed	3	XXX	Gen Ed	2
XXX	Gen Ed	3			
		14			15

Core courses required for admission to the School of Nuclear Medicine Technology at Froedtert are highlighted in red. Strongly recommended elective courses are shown in orange (students must complete 6 or more credits of these). This also assumes at least 30 credits from an affiliate School of Nuclear Medicine Technology to fulfill the requirements for a Bachelor of Science degree (120 total credits) at WLC.

Typical courses from Froedtert's NMT program	
First Semester	**17 total**
Management & Methods of Patient Care	2
Anatomy, Physiology and Pathology	4
Radiation Protection	2
Clinical Nuclear Practicum I	4
Nuclear Radiation Physics and Instrumentation	3
Multimodality Imaging	2

[1] NMT Job shadowing may be arranged at Froedtert through this website: https://www.froedtert.com/health-care-professionals/education/job-shadow-observer

[2] To ensure that at least 8 students are enrolled in this course it may be offered every-other year, so that both Freshman and Sophomore Nuclear Medicine Technology Students will take the course together.

Second Semester	**17 total**
Clinical Nuclear Practicum II	8
Nuclear Medicine Quality Control Practicum	2
Nuclear Medicine Chemistry	4
Application of Computers to Nuclear Medicine	1
Independent Study	2

Course Descriptions

BIO201 Principles of Biology 1 - 4 cr.

Includes aspects of ecology, environmental science, plant and animal tissues, food production and intake, human anatomy and physiology, reproduction in plants and animals, living kingdoms, and animal behavior. 3 hrs lecture, 2 hrs lab

BIO202 Principles of Biology 2 - 4 cr.

An introduction to cellular reproduction, genetics, natural selection, biochemistry, and cellular biology. 3 hrs lecture, 2 hrs lab

BIO225 Human Anatomy & Physiology 1 - 4 cr.

A systematic approach to the study of human anatomy and physiology using models, charts, readings and dissection. A human cadaver is an integral part of this course. Emphasis is placed on anatomy. Mastery of anatomical vocabulary is expected. 3 hrs lecture, 2 hrs lab

BIO235 Sectional Anatomy - 2 cr.

An introduction to human anatomy from a medical imaging perspective. Emphasis on structures viewed in transverse, coronal and sagittal planes of CT and MRI. Normal anatomy will be compared with anatomic variants and pathologies. 2 lec.

BIO255 Human Anatomy & Physiology 2 - 4 cr.

A continuation of Human Anatomy and Physiology 1 with emphasis on the function of organ systems and cellular mechanisms responsible for homeostasis 3 hrs lecture, 2 hrs lab

BIO331 Cell Biology - 4 cr.

Study of the cell as the fundamental structural and functional unit of living organisms: cell morphology and morphogenesis, cellular movement, interaction, ultrastructure and related

organelle functions, reproduction, differentiation and histogenesis. 3 hrs lecture, 3 hrs lab

BIO354 Immunology - 3 cr.
An introduction to the mammalian immune system. The genetic and cellular basis of the immune response is explored through lectures, readings from primary and secondary literature and discussions. 3 hrs lecture

BIO355 Pathophysiology - 3 cr.
An integration of human anatomy, physiology, and biochemistry with special emphasis on the etiology and mechanisms of disease. Lecture topics will include: cell injury, inflammation, immunity, neoplasia, blood & circulatory disorders, respiratory disease, gastrointestinal disease, electrolyte imbalances, endocrinology, reproductive physiology, musculoskeletal disease, pain management, and disorders of the central nervous system 3 hrs lecture

CHE161 General Chemistry 1 - 4 cr.
A study of the fundamental laws and concepts of chemistry. The emphasis is placed on atomic and molecular structure and bonding, stoichiometry, thermodynamics, and solutions. Recommended to be taken in conjunction with CHE 168. 4 lec.

CHE162 General Chemistry 2 - 4 cr.
A continuation of CHE 161. This course includes the study of equilibrium systems, acid/base concepts, kinetics, phases of matter, electrochemistry, and nuclear chemistry. Recommended to be taken in conjunction with CHE 169. 4 hrs. lec.

CHE168 General Chemistry 1 Lab - 1 cr.
Introduction to basic laboratory techniques, with emphasis placed on atomic and molecular structure and bonding, stoichiometry, thermodynamics, and solutions. 3 hrs. lab.

CHE169 General Chemistry 2 Lab - 1 cr.
Laboratory work exploring equilibrium systems, acid/base concepts, kinetics, phases of matter, and electrochemistry. 3 hrs. lab.

CHE221 Organic Chemistry 1 - 3 cr.
An introduction to nomenclature, electronic structure and chemistry of carbon compounds, including free radical substitution, electrophilic addition to alkenes, nucleophilic aliphatic substitution and elimination reactions. 3 lec.

MAT120 Precalculus – 4 cr.

Fundamental principles of college algebra and trigonometry essential to the study of calculus. Emphasis on functions and their graphs including polynomials, rational functions, exponential and logarithmic functions, trigonometric functions. 4 lec.

NMT101 Foundations of Radiation Science - 3 cr.

This course includes an introduction to atomic nuclei, nuclear decay and ionizing radiation (especially gamma- and X-rays). Instrumentation used to detect radiation will be considered along with the effects of radiation on biological systems. This course will include guest lectures from a wide range of specialties including physics, chemistry, biology and nuclear medicine. 3 lec.

NMT490 Internship / Job Shadowing in Nuclear Medicine Technology - 1 cr.

By arrangement with instructor.

PHY203 Atoms, Nuclei and Matter - 3 cr.

The concept of an indivisible unit of matter arose thousands of years ago with the concept of the atom. Since then, our understanding of matter has undergone revolutionary changes, particularly in the 20th century. In this course we will focus on understanding the quantum theory of atoms, nuclei and matter, as developed by thinkers such as Rutherford, Planck, Bohr, Einstein, Schrödinger, and Heisenberg. 3 lec.