### EXTERNAL COURSES - SENeca (XSEND)

**XSEN*3030  Pharmacology and Applied Toxicology  Winter Only  (LEC: 3, LAB: 3) [0.50]**
This subject is an introduction to the general aspects of pharmacology and toxicology. The lecture topics will cover the pharmacological activity of drugs on the autonomic nervous system, central nervous system and the cardiovascular system. The laboratory practicals will focus on testing, drug screening, and clinical trial methodology. This course is taught at Seneca College.

**Prerequisite(s):** BIOC*2580, CHEM*2400  
**Restriction(s):** Restricted to BSCH.BPCH and BSCH.BPCH:C  
**Department(s):** Department of Chemistry  
**Location(s):** Seneca College

**XSEN*3040  Occupational Health and Chemistry  Winter Only  (LEC: 2, LAB: 3) [0.50]**
A general coverage of general aspects of industrial hygiene. Specific topics include Canadian legislation with respect to Occupational Safety, modes of evaluation of chemical exposure, occupational toxicology, and instrumentation associated with the evaluation of the occupational environment. This course is taught at Seneca College.

**Prerequisite(s):** CHEM*2700  
**Restriction(s):** Restricted to BSCH.BPCH and BSCH.BPCH:C  
**Department(s):** Department of Chemistry  
**Location(s):** Seneca College

**XSEN*3060  Pharmaceutical Analysis - Advanced  Winter Only  (LEC: 2, LAB: 3) [0.50]**
This course reinforces the concept of how the pharmaceutical laboratory works by focusing on method validation requirements within the pharmaceutical industry. It introduces students to the regulatory (ICH, FDA) requirements and guidelines for systems validation, including TPP-acceptable methods and GMP regulations. Validation methods that are taught include Related Substances, Assay, Dissolution and Cleaning. Critical validation parameters (e.g., linearity, specificity, limit of quantitation, etc.) are focused on as well as validation protocols including establishing specifications and dealing with exceptions or out-of-specification (OOS) results. Process validation characteristics (i.e., Design Qualification (DQ), Installation Qualification (IQ), Operation Qualification (OQ), Performance Qualification(PQ) or System Suitability) are also emphasized as well as “Best Practices” such as Process Capabilities and Annual Product Review. This course is taught at Seneca College.

**Prerequisite(s):** BIOC*2580, CHEM*2400  
**Restriction(s):** Restricted to BSCH.BPCH and BSCH.BPCH:C  
**Department(s):** Department of Chemistry  
**Location(s):** Seneca College

**XSEN*3070  Pharmaceutical Product Formulations  Winter Only  (LEC: 2, LAB: 3) [0.50]**
This subject deals with the theoretical and practical aspects of pharmaceutical product formulation with an emphasis on semi-solid and liquid formulations. The students prepare and test ointments, creams, lotions, and syrups in the laboratory. Formulation as it relates to overall product stability and efficacy is also covered in both theoretical and practical terms. This course is taught at Seneca College.

**Prerequisite(s):** CHEM*3750  
**Restriction(s):** XSEN*4030. Restricted to BSCH.BPCH and BSCH.BPCH:C  
**Department(s):** Department of Chemistry  
**Location(s):** Seneca College

**XSEN*3090  Biopharmaceuticals  Winter Only  (LEC: 3) [0.50]**
This subject introduces the student to the rapidly developing field of biotechnology and biopharmaceuticals. Techniques used in the development of biopharmaceuticals will be emphasized as well as large-scale production of biologicals manufactured by genetic engineering processes. This course is taught at Seneca College.

**Prerequisite(s):** BIOC*2580, CHEM*2700  
**Restriction(s):** XSEN*4050. Restricted to BSCH.BPCH and BSCH.BPCH:C  
**Department(s):** Department of Chemistry  
**Location(s):** Seneca College

**XSEN*3200  Pharmaceutical Organic Chemistry  Winter Only  (LEC: 1, LAB: 3) [0.50]**
The determination of the structure of organic compounds using spectroscopic methods such as N.M.R. and mass spectroscopy are discussed. Correlation of structure and reactivity (i.e. drug activity) of organic compounds is also explored. A multi-step synthesis of an anesthetic (lidocaine) and mass-spectrometric analysis of an unknown organic compound (or mixture) are examples of lab-projects. This course is taught at Seneca College.

**Prerequisite(s):** CHEM*3750  
**Restriction(s):** XSEN*4020. Restricted to BSCH.BPCH and BSCH.BPCH:C  
**Department(s):** Department of Chemistry  
**Location(s):** Seneca College

**XSEN*3210  Introduction to Pharmaceutical Manufacturing  Winter Only  (LEC: 2, LAB: 3) [0.50]**
This laboratory oriented course is intended to introduce students to the world of pharmaceutical analysis and manufacturing. Certain select physical and chemical techniques used in the control of raw materials and finished dosage forms are emphasized. Topics will include the methods and equipment required to produce solid dosages.

**Prerequisite(s):** CHEM*2700  
**Restriction(s):** Restricted to BSCH.BPCH and BSCH.BPCH:C  
**Department(s):** Department of Chemistry  
**Location(s):** Seneca College