Course Outline

Course Number:  PHM302H1

Course Title:  Pharmacotherapy 7: Neuropsychiatry

Outline Version Code:

Course Description:  This course is designed to provide pharmacy students with the knowledge in pathobiology, pharmacology, pharmacotherapy and clinical pharmacokinetics required to be a practitioner in neuropsychiatric therapeutics. The course may be taught using a variety of techniques including online lectures, case-based learning and small interactive group learning.

Semester:  ☑ Fall  ☐ Winter

Course Type:  ☐ Elective  ☐ Selective  ☑ Mandatory

1. Course Learning Objectives:

Upon completion of this course, students will have achieved the following level of learning objectives:
Introductory = knowledge and comprehension of concepts, definitions,
Intermediate = application of concepts to simple situations
Advanced = application of concepts to more complex situations with ability to synthesize and evaluate

Knowledge

Psychiatry

1. For the following selected mental health disorders, summarize the etiology, neuroscience concepts, epidemiology, clinical presentation, risk factors and progression: schizophrenia, depression, generalized anxiety, bipolar, alcohol, nicotine, benzodiazepine and opioid use disorders. [INTERMEDIATE].

2. Identify the diagnostic criteria outlined in the Diagnostic and Statistical Manual of Mental Disorders 4th Edition, text revision (DSM-IV-TR) and DSM-5 used in the diagnosis of the selected disorders. [INTERMEDIATE].

3. Compare and contrast the available classes of medications used for the selected disorders based on the following criteria: indications, efficacy, mechanism of action, pharmacokinetics, pharmacodynamics, pharmacogenomics, adverse effects, warnings/precautions, contraindications, drug interactions (drug-drug, drug-food, and drug-laboratory), convenience, cost, formulations and stability. [INTERMEDIATE]

4. Describe the role of therapeutic drug monitoring in psychiatric disorders, including rationale for use, clinical interpretation, and dose adjustments. [INTERMEDIATE]

5. Describe relevant pharmaceutical considerations in the use of depot injections [INTRODUCTORY]

6. Identify key pharmacokinetic parameters that influence the abuse potential of drugs [INTERMEDIATE]

Neurology

1. For the following neurologic conditions, summarize the etiology, pathophysiology, epidemiology, clinical presentation, risk factors and progression: seizure disorders, migraines, and dementia. [INTERMEDIATE]

2. Identify the appropriate (laboratory, clinical presentation, medical imaging) findings used in the diagnosis and ongoing monitoring of the selected conditions. [INTERMEDIATE]

3. Compare and contrast the available classes of medications used for the selected disorders based on the following criteria: indications, efficacy, mechanism of action, pharmacokinetics, pharmacodynamics, pharmacogenomics, adverse effects, warnings/precautions, contraindications, drug interactions (drug-drug, drug-food, and drug-laboratory), convenience, cost, formulations and stability. [INTERMEDIATE]

4. Discuss the role of therapeutic drug monitoring in seizure disorders including rationale for use, clinical interpretation, and dose adjustments. [INTERMEDIATE]

Skills

1. Select relevant data from patient demographics, review of systems (ROS), laboratory tests, medical imaging, and drug therapy in order to identify drug therapy problems. [INTERMEDIATE]

2. Analyze relevant information from subjective and objective sources, (e.g., review of systems, medical imaging, diagnostic tests, biochemical markers), to identify drug therapy problems, urgency, and priority for a given clinical situation. [INTERMEDIATE]
3. Justify the selection of a preferred alternative for a given therapeutic scenario based on the assessment of relevant therapeutic alternatives and specific patient population. [INTERMEDIATE]
4. Develop a care plan for a given clinical situation. [INTERMEDIATE]
5. Justify the proposed interventions of the care plan to meet the stated goals of therapy. [INTERMEDIATE]
6. Evaluate the quality, accuracy, and completeness of the care plan. [INTERMEDIATE]
7. Locate reliable sources of information in the area of psychiatric and neurologic therapeutics. [INTERMEDIATE]
8. Demonstrate the ability to critique and interpret results from observational studies, randomized controlled trials and meta-analyses in psychiatry/neurology. [INTERMEDIATE]

Attitudes / Values
1. The student will undertake assessment and care plan development activities in a manner that illustrates their understanding of the importance of respecting patient autonomy and individual therapeutic goals. [INTERMEDIATE]
2. The student will use interprofessional patient-centered care principles to reach decisions for therapeutic alternatives with members of their peer groups. [INTERMEDIATE]
3. The student will articulate the importance of demonstrating a non-judgmental, empathetic, and professional attitude towards patients who have psychiatric and substance use disorders, which continue to be associated with significant stigma.
4. The student will demonstrate respect and collaboration in team functioning within their small peer groups. [INTERMEDIATE]

2. Rationale for Inclusion in the Curriculum:
Mental Health Disorders account for significant morbidity and mortality worldwide. The World Health Organization lists several mental health disorders on their list of the top 10 leading causes of disability worldwide. In Canada, 1 in 5 Canadians will personally experience a mental illness during their lifetime. (Health Canada - A Report on Mental Illness in Canada, 2002). In Ontario, the Select Committee on Mental Health and Addiction reviewed the mental health system in Ontario and in their final report (2010), recommended that primary care providers should be given the proper tools and support to enable them to develop a greater sensitivity for the mental health and addictions needs of their patients, and that all interdisciplinary primary care models should include a mental health and addictions treatment component. A key recommendation in the College of Physicians and Surgeons of Ontario report entitled, “Avoiding Abuse, Achieving a Balance: Tackling the Opioid Public Health Crisis” (2010) is that enhanced training and ongoing education of health care providers in the safe use of opioids is needed. In 2007, the Canadian Institute for Health Information released a report entitled, “The Burden of Neurological Diseases, Disorders and Injuries in Canada” which indicates that neurological diseases, disorders and injuries are one of the leading causes of disability in the Canadian population. It is stated that over 9% of acute care hospitalizations and 19% of patient days in acute care hospitals in Canada (2004–2005) were for patients with one of the neurological conditions highlighted in the report. In addition, half of the complex continuing care stays were for patients with a neurological condition. Drug expenditures accounted for approximately half of the direct costs for several neurological disorders. Therefore, it is important that the pharmacotherapy of these disorders be part of the core curriculum for training pharmacists.

3. Pre-requisites:
PHM101H1; PHM112H1; PHM140H1; PHM141H1; PHM142H1; PHM143H1; PHM144H1; PHM145H1; PHM146H1; PHM212H1; PSL205H1

4. Co-requisites:

5. Course Contact Hours and Teaching Methodologies:

<table>
<thead>
<tr>
<th>Didactic (lecture)</th>
<th>27 hours</th>
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</thead>
<tbody>
<tr>
<td>Large group problem-based or case-based learning (group size)</td>
<td>12 hours (60)</td>
</tr>
<tr>
<td>Laboratory or Simulation</td>
<td>Hours</td>
</tr>
<tr>
<td>Tutorial/Seminar/Workshop/Small Group (group size)</td>
<td>Hours</td>
</tr>
<tr>
<td>Experiential</td>
<td>Hours</td>
</tr>
<tr>
<td>On-line</td>
<td>Hours</td>
</tr>
<tr>
<td>Other:</td>
<td>Hours</td>
</tr>
<tr>
<td><strong>Total course contact hours</strong></td>
<td><strong>39 hours</strong></td>
</tr>
</tbody>
</table>

6. Estimate and description of student’s weekly out-of-class preparation time excluding exam preparation:

Review learning objectives, required readings, assignments, case reviews, patient assessments, care plan documents prepared for each disease state (3 –7 hrs/week), higher during weeks of case discussions and test/examination preparation.
7. Topics Covered

a. **Topic:** Schizophrenia, Alcohol, Nicotine, Benzodiazepine and Opioid Use disorders, Depression, Generalized Anxiety Disorder, Bipolar Disorder, Seizures, Migraines and Dementia.
   **Description:** neurobiology, clinical presentation, diagnostic features, pharmacology and clinical management/pharmacotherapy of each disorder

b. **Topic:** Pharmacology (antipsychotics, antidepressants, opioids, benzodiazepines, lithium, anticonvulsants, cholinesterase inhibitors, triptans)
   **Description:** Key pharmacology of each of the above drug classes

c. **Topic:** Key Pharmacokinetic Principles of CNS Drugs and Drugs of Abuse
   **Description:** discussion of key pharmacokinetic principles that impact CNS drugs and features that may contribute to drug abuse potential.

d. **Topic:** Therapeutic Drug Monitoring
   **Description:** Principles of therapeutic drug monitoring for lithium, valproic acid, carbamazepine and phenytoin.

e. **Topic:** Pharmaceutics of CNS drug Delivery
   **Description:** Pharmaceutical principles of getting drugs into the CNS; role of intranasal drug administration; pharmaceutics of depot injections used for mental illness

8. Assessment Methodologies Used:

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Course Learning Objectives Addressed</th>
<th>Assessment Method Used</th>
<th>% of Course Grade</th>
<th>For Group Work: Individualized or same mark for all group members</th>
</tr>
</thead>
<tbody>
<tr>
<td>1: Quizzes (1 per workshop, 6 total)</td>
<td>1, 2 and 3 in Knowledge category (selected condition)</td>
<td>MCQ Scratch Card</td>
<td>15% (top 5 quiz grades will be recorded)</td>
<td></td>
</tr>
<tr>
<td>2: Evidenced-Based Clinical Assessment Assignment</td>
<td>Skills 3, 7 and 8</td>
<td>Written Essay</td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>3: Midterm</td>
<td>Relevant knowledge and skills</td>
<td>MCQ</td>
<td>30%</td>
<td></td>
</tr>
<tr>
<td>4: Final Exam</td>
<td>Relevant knowledge and skills</td>
<td>MCQ</td>
<td>35%</td>
<td></td>
</tr>
</tbody>
</table>

*Expectation for pass grades for all Pharmacy courses is 60%.*

9. **Policy and procedure regarding make-up assignments/examinations/laboratories:**

Students who miss an examination, including quiz or test, and who have a valid petition filed with the Registrar's office, will be eligible to complete a make-up assessment. For missed examinations, the make-up will be an examination. For missed quizzes, the make-up will be at the discretion of the course coordinator(s), and may include, for example, a make-up quiz or assignment of selected Case Workshop questions for the relevant course topic.

**Missed Assignment**

Students who fail to submit an assignment by the specified due date, and who have a valid petition filed with the Registrar's office will be eligible to submit the completed assignment, or an alternative assignment based on course requirements, with no academic penalty.
Late Assignment

Students who fail to submit an assignment by the specified due date will receive a deduction of 10% for each day beyond the due date (and time) (including weekends/holidays), to a maximum of 50%. Assignments will not be accepted for grading after 5 late days.

10. Policy and procedure regarding supplemental assignments/examinations/laboratories:

As outlined in the Leslie Dan Faculty of Pharmacy Calendar.