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## **COURSE OVERVIEW**

*PCP-107 Therapeutics* will be delivered in the classroom setting using an interactive, student-centered blend of lecture and group discussion formats. In *Therapeutics* we will introduce students to patient treatment modalities. Students will learn about protocols and safe effective procedures for medication administration, intravenous initiation, and fluid therapy.

Specific topics include drug approval process and regulation of pharmaceuticals in Canada, general properties and forms of medications, classes of medications, routes of medication administration, pharmacokinetics & pharmacodynamics, drugs affecting the various systems of the body, medication administration techniques, medication calculations, vitamins and minerals, antidotes and overdoses, fluids and electrolytes, IV fluid composition, IV techniques and fluid administration, IV fluid administration calculations, and complications in medication and IV fluid administration.

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## **MEETING TIMES & INSTRUCTIONAL METHODS**

In-class sessions (virtual when warranted)

Lecture/Group Discussion:                      Thursdays                      08:30 – 10:00

Total hours:    23

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## **REQUIRED MATERIALS, PREREQUISITES, & COREQUISITES**

### **Textbook**

Caroline, N. (2021). *Emergency Care in the Streets, Canadian Edition 8<sup>th</sup> edition*. Burlington, MA, Jones and Bartlett Learning.

### **Class Materials**

Students will be expected to come to class prepared to take notes and complete in-class activities. Instructors may also specify the use of mobile phones and laptops for some activities.

**Supplemental materials to be posted on the private members' area of the Omni Life Support website.** Materials related to *PCP-107* (such as in-class presentations and assignments) will be available for student access on this website. Academy faculty does not authorize the posting of *PCP-107* materials on other sites. Each student is responsible for their own learning, which includes staying current with postings on the Omni Life Support website.



**OLS  
Academy**

**Primary Care Paramedicine 2024-25**  
**Term 1 | Block 1 & 2**  
**PCP-107 Therapeutics**  
OLS Academy  
Course Outline

**Prerequisites:**

None

**Corequisites:**

PCP-101, PCP-105, PCP-112, PCP-113, PCP-114, PCP-116,  
PCP-117, PCP-119, & PCP-11PT

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## **INSTRUCTOR(S)**

**Instructor:** Chelsea Greene, PCP    E-mail: [chelsea.greene@omnilifesupport.com](mailto:chelsea.greene@omnilifesupport.com)  
Voice: (506) 830-4277

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## **LEARNING OUTCOMES**

Upon successful completion of this course it is expected that students will have gained sufficient knowledge and skills to safely and proficiently administer pharmacological and fluid therapies. By the end of the course, the student will be able to:

- Describe the drug approval process and regulation of pharmaceuticals in Canada
- List the general properties and forms of medications, classes of medications related to the Primary Care Paramedic scope of practice, and routes of medication administration
- Differentiate between pharmacokinetics & pharmacodynamics
- Explain how the medications in their charge will affect the respective target systems of the body
- Safely administer medications, including vaccines, via the enteral and parenteral routes
- Recognize the commonly used intravenous (IV) fluids that will be encountered working as a Primary Care Paramedic
- Perform IV cannulation
- Safely and accurately calculate and administer IV fluid appropriately
- Explain the potential risk of and recognize complications to medication and IV fluid administration

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## **INTENDED LEARNING OBJECTIVES:**

Learning objectives for *PCP-107 Therapeutics* are guided by the *National Occupational Competency Profiles (NOCP)* for paramedics. Each objective, indicated by the prefix “O”, is linked to the corresponding *NOCP* sub-competency with the matching alpha-numerical code (e.g., O1.1.a is the learning objective tied to sub-competency 1.1.a of the *NOCP* for paramedics). As per the *NOCP* guidelines for paramedics, to succeed in this course, you must demonstrate competence in the following areas:



<b>Learning Objectives</b>	<b>Embedded Knowledge and Skills</b>
<b>O4.5.d</b>	By the end of the course, the student will be able to: <ul style="list-style-type: none"> <li>○ <b>4.5.d.1 - Identify</b> indications and rationale for performing peripheral venipuncture.</li> </ul>
<b>O4.5.j</b>	By the end of the course, the student will be able to: <ul style="list-style-type: none"> <li>○ <b>4.5.j.1 - Define</b> “central venous catheterization.”</li> <li>○ <b>4.5.j.2 - Discuss</b> indications and rationale for performing central venous catheterization.</li> </ul>
<b>O4.5.l</b>	By the end of the course, the student will be able to: <ul style="list-style-type: none"> <li>○ <b>4.5.l.1 - Describe</b> common laboratory tests.</li> <li>○ <b>4.5.l.2 - Differentiate</b> normal from abnormal results.</li> </ul>
<b>O4.5.q</b>	By the end of the course, the student will be able to: <ul style="list-style-type: none"> <li>○ <b>Identify</b> indications and rationale for performing urinalysis.</li> <li>○ <b>Identify</b> common assessments associated with urinalysis by qualitative method.</li> </ul>
<b>O5.5.c</b>	By the end of the course, the student will be able to: <ul style="list-style-type: none"> <li>○ <b>5.5.c.1 - Describe</b> equipment for peripheral IV infusion.</li> <li>○ <b>5.5.c.2 - Identify</b> factors that affect the flow rate.</li> <li>○ <b>5.5.c.3 - Demonstrate</b> the ability to discontinue an infusion following sequential steps.</li> <li>○ <b>5.5.c.4 - Adjust</b> devices as required to maintain flow rates.</li> </ul>
<b>O5.5.d</b>	By the end of the course, the student will be able to: <ul style="list-style-type: none"> <li>○ <b>5.5.d.1 - Identify</b> the purposes of and indications for peripheral IV cannulation.</li> <li>○ <b>5.5.d.2 - List</b> the steps of peripheral IV cannulation.</li> <li>○ <b>5.5.d.3 - Perform</b> peripheral IV cannulation.</li> <li>○ <b>5.5.d.4 - Discuss</b> potential complications of peripheral IV cannulation.</li> <li>○ <b>5.5.d.5 - Adapt</b> to changes in patient presentation.</li> </ul>
<b>O5.5.e</b>	By the end of the course, the student will be able to: <ul style="list-style-type: none"> <li>○ <b>5.5.e.1 - Identify</b> the purposes of and indications for intraosseous needle insertion.</li> <li>○ <b>5.5.e.2 - List</b> the steps of intraosseous needle insertion.</li> <li>○ <b>5.5.e.3 - Identify</b> potential complications of intraosseous needle insertion.</li> </ul>



<b>Learning Objectives</b>	<b>Embedded Knowledge and Skills</b>
<b>O5.5.f</b>	By the end of the course, the student will be able to: <ul style="list-style-type: none"> <li>○ <b>5.5.f.1 - Discuss</b> purposes of and indications for pressure infusion.</li> <li>○ <b>5.5.f.2 - Discuss</b> the principles and techniques for applying added pressure to an infusion line.</li> <li>○ <b>5.5.f.3 - Perform</b> direct pressure infusions.</li> <li>○ <b>5.5.f.4 - Adjust</b> to changes in patient presentation.</li> </ul>
<b>O5.5.g</b>	By the end of the course, the student will be able to: <ul style="list-style-type: none"> <li>○ <b>5.5.g.1 - Explain</b> the reasons for administration of volume expanders.</li> <li>○ <b>5.5.g.2 - List</b> equipment for administration of volume expanders</li> </ul>
<b>O5.5.h</b>	By the end of the course, the student will be able to: <ul style="list-style-type: none"> <li>○ <b>5.5.h.1 - Describe</b> the components of blood.</li> <li>○ <b>5.5.h.2 - Discuss</b> blood types.</li> <li>○ <b>5.5.h.3 - List</b> products derived from blood.</li> <li>○ <b>5.5.h.4 - List</b> precautions for handling blood.</li> <li>○ <b>5.5.h.5 - List</b> potential complications of blood transfusions.</li> </ul>
<b>O5.8.a</b>	By the end of the course, the student will be able to: <ul style="list-style-type: none"> <li>○ <b>5.8.a.1 - Identify</b> the sources for Medications.</li> <li>○ <b>5.8.a.2 - Describe</b> mechanisms of entry, absorption, site of action, metabolism, and elimination.</li> <li>○ <b>5.8.a.3 - Perform</b> calculation to determine the amount of medication required for expected action.</li> <li>○ <b>5.8.a.4 - Explain</b> factors that affect the absorption, distribution, and elimination of a medication.</li> <li>○ <b>5.8.a.5 - Discuss</b> indications, relative and absolute contraindications, side effects, dosage parameters, and safe administration process for each medication.</li> <li>○ <b>5.8.a.6 - Identify</b> drug classification.</li> <li>○ <b>5.8.a.7 - Identify</b> chemical, generic, trade and official names for medications.</li> <li>○ <b>5.8.a.8 - Discuss</b> the information found within an appropriate medication references.</li> <li>○ <b>5.8.a.9 - Explain</b> formulations related to administration.</li> <li>○ <b>5.8.a.10 - Define</b> pharmacological terminology and abbreviations.</li> <li>○ <b>5.8.a.11 - List</b> the signs, symptoms and side-effects of iatrogenic overdose.</li> </ul>



<b>Learning Objectives</b>	<b>Embedded Knowledge and Skills</b>
<b>05.8.b</b>	<p>By the end of the course, the student will be able to:</p> <ul style="list-style-type: none"> <li>○ <b>5.8.b.1 - Explain</b> the “Five Rights” of medication administration.</li> <li>○ <b>5.8.b.2 - Distinguish</b> between the different drug administration routes.</li> <li>○ <b>5.8.b.3 - Distinguish</b> between the different drug administration routes.</li> <li>○ <b>5.8.b.4 - Describe</b> how medication administration protocols are applied to specific patient presentation.</li> <li>○ <b>5.8.b.5 - Apply</b> policies when medication administration errors occur.</li> <li>○ <b>5.8.b.6 - Explain</b> the role of the paramedic in medication administration.</li> <li>○ <b>5.8.b.7 - Demonstrate</b> how to provide medications using a sequential step method of administration.</li> <li>○ <b>5.8.b.8 - Demonstrate</b> how to prepare a patient for medication administration.</li> <li>○ <b>5.8.b.9 - Demonstrate</b> how to measure the required quantity of medication.</li> <li>○ <b>5.8.b.10 - Set up</b> the supplies required for the specific route of drug administration.</li> <li>○ <b>5.8.b.11 - Receive</b> consent before administration of medications.</li> </ul>
<b>05.8.c</b>	<p>By the end of the course, the student will be able to:</p> <ul style="list-style-type: none"> <li>○ <b>5.8.c.1 - Identify</b> medical conditions and indications for subcutaneous administration of a medication.</li> <li>○ <b>5.8.c.2 - Apply</b> proper calculations for correct medication requirement for the patient presentation.</li> <li>○ <b>5.8.c.3 - Distinguish</b> those approved drugs that are given via subcutaneous routes.</li> <li>○ <b>5.8.c.4 - Evaluate</b> appropriate site for the injection.</li> <li>○ <b>5.8.c.5 - Discuss</b> the benefit of medication administration via subcutaneous route in comparison to other routes.</li> <li>○ <b>5.8.c.6 - Demonstrate</b> how to provide subcutaneous medications using a sequential step method of administration.</li> <li>○ <b>5.8.c.7 - Demonstrate</b> how to prepare a patient for subcutaneous medication administration.</li> <li>○ <b>5.8.c.8 - Demonstrate</b> how to measure the required quantity of medication.</li> </ul>



<b>Learning Objectives</b>	<b>Embedded Knowledge and Skills</b>
<b>O5.8.d</b>	By the end of the course, the student will be able to: <ul style="list-style-type: none"><li>○ <b>5.8.d.1 - Identify</b> medical conditions, and indications for intramuscular administration of a medication.</li><li>○ <b>5.8.d.2 - Apply</b> proper calculations for correct medication requirement for the patient presentation.</li><li>○ <b>5.8.d.3 - Distinguish</b> those approved drugs that are given via intramuscular routes.</li><li>○ <b>5.8.d.4 - Evaluate</b> appropriate site for the injection.</li><li>○ <b>5.8.d.5 - Discuss</b> the benefit of medication administration via intramuscular route in comparison to other routes.</li><li>○ <b>5.8.d.6 - Demonstrate</b> how to provide intramuscular medications using a sequential step method of administration.</li><li>○ <b>5.8.d.7 - Demonstrate</b> how to prepare a patient for intramuscular medication administration.</li><li>○ <b>5.8.d.8 - Demonstrate</b> how to measure the required quantity of medication.</li></ul>
<b>O5.8.e</b>	By the end of the course, the student will be able to: <ul style="list-style-type: none"><li>○ <b>5.8.e.1 - Describe</b> medical conditions and patient indications for intravenous administration of a medication.</li><li>○ <b>5.8.e.2 - Apply</b> proper calculations for correct medication requirement for the patient presentation.</li><li>○ <b>5.8.e.3 - Identify</b> those approved drugs that are given via intravenous routes.</li><li>○ <b>5.8.e.4 - Explain</b> the benefit of medication administration via intravenous route in comparison to other routes.</li></ul>
<b>O5.8.f</b>	By the end of the course, the student will be able to: <ul style="list-style-type: none"><li>○ <b>5.8.f.1 - List</b> medical conditions and patient indications for intraosseous administration of a medication.</li><li>○ <b>5.8.f.2 - Apply</b> proper calculations for correct medication requirement for the patient presentation.</li><li>○ <b>5.8.f.3 - Identify</b> those approved drugs that are given via intraosseous routes.</li><li>○ <b>5.8.f.4 - Identify</b> appropriate site for the injection.</li><li>○ <b>5.8.f.5 - Explain</b> the benefit of medication administration via intraosseous route in comparison to other routes.</li></ul>



<b>Learning Objectives</b>	<b>Embedded Knowledge and Skills</b>
<b>O5.8.g</b>	<p>By the end of the course, the student will be able to:</p> <ul style="list-style-type: none"> <li>○ <b>5.8.g.1 - List</b> medical conditions and patient indications for endotracheal administration of a medication.</li> <li>○ <b>5.8.g.2 - Apply</b> proper calculations for correct medication requirement for the patient presentation.</li> <li>○ <b>5.8.g.3 - Identify</b> the benefit of medication administration via endotracheal route in comparison to other routes.</li> <li>○ <b>5.8.g.4 - Identify</b> those approved drugs that are given via endotracheal route.</li> <li>○ <b>5.8.g.5 - Explain</b> the benefit of medication administration via endotracheal route in comparison to other routes.</li> </ul>
<b>O5.8.h</b>	<p>By the end of the course, the student will be able to:</p> <ul style="list-style-type: none"> <li>○ <b>5.8.h.1 - Evaluate</b> medical conditions, and indications for sublingual administration of a medication.</li> <li>○ <b>5.8.h.2 - Apply</b> proper calculations for correct medication requirement for the patient presentation.</li> <li>○ <b>5.8.h.3 - Distinguish</b> those approved drugs that are given via sublingual routes.</li> <li>○ <b>5.8.h.4 - Discuss</b> the benefit of medication administration via sublingual route in comparison to other routes.</li> <li>○ <b>5.8.h.5 - Demonstrate</b> how to provide sublingual medications using a sequential step method of administration.</li> <li>○ <b>5.8.h.6 - Demonstrate</b> how to prepare a patient for sublingual medication administration.</li> <li>○ <b>5.8.h.7 - Demonstrate</b> how to measure the required quantity of sublingual medication.</li> </ul>



<b>Learning Objectives</b>	<b>Embedded Knowledge and Skills</b>
<b>O5.8.i</b>	By the end of the course, the student will be able to: <ul style="list-style-type: none"> <li>○ <b>5.8.i.1 - Evaluate</b> medical conditions and indications for buccal administration of a medication.</li> <li>○ <b>5.8.i.2 - Apply</b> proper calculations for correct medication requirement for the patient presentation.</li> <li>○ <b>5.8.i.3 - Distinguish</b> those approved drugs that are given via buccal routes.</li> <li>○ <b>5.8.i.4 - Discuss</b> the benefit of medication administration via buccal route in comparison to other routes.</li> <li>○ <b>5.8.i.5 - Demonstrate</b> how to provide buccal medications using a sequential step method of administration.</li> <li>○ <b>5.8.i.6 - Demonstrate</b> how to prepare a patient for buccal medication administration.</li> <li>○ <b>5.8.i.7 - Demonstrate</b> how to measure the required quantity of buccal medication.</li> </ul>
<b>O5.8.j</b>	By the end of the course, the student will be able to: <ul style="list-style-type: none"> <li>○ <b>5.8.j.1 - Identify</b> medical conditions, and indications for topical administration of a medication.</li> <li>○ <b>5.8.j.2 - Apply</b> proper calculations for correct medication requirement for the patient presentation.</li> <li>○ <b>5.8.j.3 - Identify</b> those approved drugs that are given via topical routes.</li> <li>○ <b>5.8.j.4 - Explain</b> the benefit of medication administration via topical route in comparison to other routes.</li> </ul>
<b>O5.8.k</b>	By the end of the course, the student will be able to: <ul style="list-style-type: none"> <li>○ <b>5.8.k.1 - Evaluate</b> medical conditions and indications for oral administration of a medication.</li> <li>○ <b>5.8.k.2 - Apply</b> proper calculations for correct medication requirement for the patient presentation.</li> <li>○ <b>5.8.k.3 - Distinguish</b> those approved drugs that are given via oral routes.</li> <li>○ <b>5.8.k.4 - Discuss</b> the benefit of medication administration via oral route in comparison to other routes.</li> <li>○ <b>5.8.k.5 - Demonstrate</b> how to provide oral medications using a sequential step method.</li> <li>○ <b>5.8.k.6 - Demonstrate</b> how to prepare a patient for oral administration of a medication.</li> <li>○ <b>5.8.k.7 - Demonstrate</b> how to measure the required quantity of oral medication.</li> </ul>





<b>Learning Objectives</b>	<b>Embedded Knowledge and Skills</b>
<b>O5.8.l</b>	By the end of the course, the student will be able to: <ul style="list-style-type: none"> <li>○ <b>5.8.l.1 - List</b> medical conditions and indications for rectal administration of a medication.</li> <li>○ <b>5.8.l.2 - Apply</b> proper calculations for correct medication requirement for the patient presentation.</li> <li>○ <b>5.8.l.3 - Identify</b> those approved drugs that are given via rectal routes.</li> </ul>
<b>O5.8.m</b>	By the end of the course, the student will be able to: <ul style="list-style-type: none"> <li>○ <b>5.8.m.1 - Evaluate</b> medical conditions, and indications for inhalation administration of a medication.</li> <li>○ <b>5.8.m.2 - Apply</b> proper calculations for correct medication requirement for the patient presentation.</li> <li>○ <b>5.8.m.3 - Distinguish</b> those approved drugs that are given via inhalation.</li> <li>○ <b>5.8.m.4 - Discuss</b> the benefit of medication administration via inhalation in comparison to other routes.</li> <li>○ <b>5.8.m.5 - Demonstrate</b> how to provide inhalation medications using a sequential step method.</li> <li>○ <b>5.8.m.6 - Demonstrate</b> how to prepare a patient for inhalation administration of a medication.</li> <li>○ <b>5.8.m.7 - Demonstrate</b> how to measure the required quantity of inhalation medication.</li> </ul>
<b>O5.8.n</b>	By the end of the course, the student will be able to: <ul style="list-style-type: none"> <li>○ <b>5.8.n.1 - Evaluate</b> medical conditions, and indications for inhalation administration of a medication.</li> <li>○ <b>5.8.n.2 - Apply</b> proper calculations for correct medication requirement for the patient presentation.</li> <li>○ <b>5.8.n.3 - Distinguish</b> those approved drugs that are given via intranasal route.</li> <li>○ <b>5.8.n.4 - Evaluate</b> the benefit of medication administration via intranasal route in comparison to other routes.</li> <li>○ <b>5.8.n.5 - Demonstrate</b> how to provide medications by intranasal route using a sequential step method.</li> <li>○ <b>5.8.n.6 - Demonstrate</b> how to prepare a patient for administration of a medication via intranasal route.</li> <li>○ <b>5.8.n.7 - Demonstrate</b> how to measure the required quantity of medication for administration via intranasal route.</li> </ul>



<b>Learning Objectives</b>	<b>Embedded Knowledge and Skills</b>
<b>O5.8.o</b>	By the end of the course, the student will be able to: <ul style="list-style-type: none"><li>○ <b>5.8.o.1 - Identify</b> indications, relative and absolute contraindications, side effects, dosage parameters, and safe administration process for each medication</li></ul>
<b>OPANB.1.a</b>	By the end of the course, the student will be able to: <ul style="list-style-type: none"><li>○ <b>PANB.1.a.1 - Distinguish</b> between the antiemetics available to Primary Care Paramedics.</li></ul>
<b>OPANB.1.b</b>	By the end of the course, the student will be able to: <ul style="list-style-type: none"><li>○ <b>PANB.1.b.1 - Identify</b> the indications, contraindications, and dose of the antiemetic to be used.</li></ul>
<b>OPANB.2.a</b>	By the end of the course, the student will be able to: <ul style="list-style-type: none"><li>○ <b>PANB.2.a.1 - Distinguish</b> between the vaccines available to Primary Care Paramedics.</li></ul>
<b>OPANB.2.b</b>	By the end of the course, the student will be able to: <ul style="list-style-type: none"><li>○ <b>PANB.2.b.1 - Identify</b> the indications, contraindications, and dose of the vaccine to be used.</li></ul>

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## **GRADING**

Students will be evaluated through written examination and class participation. A minimum of **70%** must be attained to receive a passing grade for *PCP-107 Therapeutics*.

Final Project	10%
Test	10%
Midterm Exam	30%
Final Exam	40%

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## **EXPECTATIONS & TIPS FOR SUCCESS**

**Academic Standards and Workload:** Appropriate professional tone is expected on all student submissions and examinations. This is to help build strong professional practice skills.

A typical PCP course should require 1-2 hours per week of out-of-class work. This time may vary depending on how quickly you read and comprehend assigned course materials.



**OLS  
Academy**

**Primary Care Paramedicine 2024-25**  
**Term 1 | Block 1 & 2**  
**PCP-107 Therapeutics**  
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**Classroom Protocol:** Students are expected to be courteous and respectful of others, and mindful that a classroom is a shared working space with the primary goal of learning course material.

Unnecessary distractions are to be minimized. This includes turning off cell phones and other distractors during lectures unless permission has been granted by the instructor.

Tardiness is strongly discouraged as it is in the paramedic workplace. If for some reason you arrive late, please wait and enter the class during the break.

Unless otherwise notified by the class instructor, attendance of all classes is mandatory. Absences will be dealt with on a case-by-case basis.

**Deadlines and Late Penalties:** Course deliverables submitted after the due date will be assigned a grade of zero (0). This penalty may be waived at the discretion of the instructor in the event of extraordinary or special circumstances (with supporting verification/documentation).

**Absence Due to Special Circumstances or Illness:** Let Ms. Greene know in advance if you need to be away due to special circumstances. If the event conflicts with class examinations, verification of the reason for absence will be required.

**Academic Integrity:** To maintain a culture of academic integrity, members of the OLS Academy community are expected to promote honesty, trust, fairness, respect and responsibility.

**Communication Methods:** Most communications regarding *PCP-107* will be done during class sessions. Special announcements will be posted on the OLS Academy website. Emails sent to students will be sent from [academy@omnilifesupport.com](mailto:academy@omnilifesupport.com). Students can email the instructor at [chelsea.greene@omnilifesupport.com](mailto:chelsea.greene@omnilifesupport.com).

*This outline is subject to change at the discretion of academy administrators.*