



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 & minerals, antidotes and overdoses, fluid & electrolytes, IV fluid composition, IV techniques and fluid administration, IV fluid administration calculations, and complications in medication & IV fluid administration.

MEETING TIMES & INSTRUCTIONAL METHODS

In-class sessions (virtual when warranted)

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

Total hours: 23

REQUIRED MATERIALS, PREREQUISITES, & COREQUISITES

Textbook

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

Class Materials

Students will be expected to come to class prepared to take notes and to 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 & 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 his/her own learning which includes staying current with postings on the Omni Life Support website.



OLS Academy

Primary Care Paramedicine 2023-24
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

INSTRUCTOR(S)

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

LEARNING OUTCOMES

Upon successful completion of this course, it is expected that students will have gained sufficient knowledge and skill 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 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

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.



Learning Objectives	Embedded Knowledge and Skills
O4.5.d	By the end of the course, the student will be able to: <ul style="list-style-type: none"> ○ 4.5.d.1 - Identify indications and rationale for performing peripheral venipuncture.
O4.5.j	By the end of the course, the student will be able to: <ul style="list-style-type: none"> ○ 4.5.j.1 - Define “central venous catheterization.” ○ 4.5.j.2 - Discuss indications and rationale for performing central venous catheterization.
O4.5.l	By the end of the course, the student will be able to: <ul style="list-style-type: none"> ○ 4.5.l.1 - Describe common laboratory tests. ○ 4.5.l.2 - Differentiate normal from abnormal results.
O5.5.c	By the end of the course, the student will be able to: <ul style="list-style-type: none"> ○ 5.5.c.1 - Describe equipment for peripheral IV infusion. ○ 5.5.c.2 - Identify factors that affect the flow rate. ○ 5.5.c.3 - Demonstrate the ability to discontinue an infusion following sequential steps. ○ 5.5.c.4 - Adjust devices as required to maintain flow rates.
O5.5.e	By the end of the course, the student will be able to: <ul style="list-style-type: none"> ○ 5.5.e.1 - Identify the purposes of and indications for intraosseous needle insertion. ○ 5.5.e.2 - List the steps of intraosseous needle insertion. ○ 5.5.e.3 - Identify potential complications of intraosseous needle insertion.
O5.5.f	By the end of the course, the student will be able to: <ul style="list-style-type: none"> ○ 5.5.f.1 - Discuss purposes of and indications for pressure infusion. ○ 5.5.f.2 - Discuss the principles and techniques for applying added pressure to an infusion line. ○ 5.5.f.3 - Perform direct pressure infusions. ○ 5.5.f.4 - Adjust to changes in patient presentation.
O5.5.g	By the end of the course, the student will be able to: <ul style="list-style-type: none"> ○ 5.5.g.1 - Explain the reasons for administration of volume expanders. ○ 5.5.g.2 - List equipment for administration of volume expanders
O5.5.h	By the end of the course, the student will be able to: <ul style="list-style-type: none"> ○ 5.5.h.1 - Describe the components of blood. ○ 5.5.h.2 - Discuss blood types. ○ 5.5.h.3 - List products derived from blood. ○ 5.5.h.4 - List precautions for handling blood. ○ 5.5.h.5 - List potential complications of blood transfusions.



Learning Objectives	Embedded Knowledge and Skills
O5.8.a	By the end of the course, the student will be able to: <ul style="list-style-type: none">○ 5.8.a.1 - Identify the sources for Medications.○ 5.8.a.2 - Describe mechanisms of entry, absorption, site of action, metabolism, and elimination.○ 5.8.a.3 - Perform calculation to determine the amount of medication required for expected action.○ 5.8.a.4 - Explain factors that affect the absorption, distribution, and elimination of a medication.○ 5.8.a.5 - Discuss indications, relative and absolute contraindications, side effects, dosage parameters, and safe administration process for each medication.○ 5.8.a.6 - Identify drug classification.○ 5.8.a.7 - Identify chemical, generic, trade and official names for medications.○ 5.8.a.8 - Discuss the information found within an appropriate medication references.○ 5.8.a.9 - Explain formulations related to administration.○ 5.8.a.10 - Define pharmacological terminology and abbreviations.○ 5.8.a.11 - List the signs, symptoms and side-effects of iatrogenic overdose.



Learning Objectives	Embedded Knowledge and Skills
O5.8.b	<p>By the end of the course, the student will be able to:</p> <ul style="list-style-type: none"> ○ 5.8.b.1 - Explain the “Five Rights” of medication administration. ○ 5.8.b.2 - Distinguish between the different drug administration routes. ○ 5.8.b.3 - Distinguish between the different drug administration routes. ○ 5.8.b.4 - Describe how medication administration protocols are applied to specific patient presentation. ○ 5.8.b.5 - Apply policies when medication administration errors occur. ○ 5.8.b.6 - Explain the role of the paramedic in medication administration. ○ 5.8.b.7 - Demonstrate how to provide medications using a sequential step method of administration. ○ 5.8.b.8 - Demonstrate how to prepare a patient for medication administration. ○ 5.8.b.9 - Demonstrate how to measure the required quantity of medication. ○ 5.8.b.10 - Set up the supplies required for the specific route of drug administration. ○ 5.8.b.11 - Receive consent before administration of medications.
O5.8.c	<p>By the end of the course, the student will be able to:</p> <ul style="list-style-type: none"> ○ 5.8.c.1 - Identify medical conditions and indications for subcutaneous administration of a medication. ○ 5.8.c.2 - Apply proper calculations for correct medication requirement for the patient presentation. ○ 5.8.c.3 - Distinguish those approved drugs that are given via subcutaneous routes. ○ 5.8.c.4 - Evaluate appropriate site for the injection. ○ 5.8.c.5 - Discuss the benefit of medication administration via subcutaneous route in comparison to other routes. ○ 5.8.c.6 - Demonstrate how to provide subcutaneous medications using a sequential step method of administration. ○ 5.8.c.7 - Demonstrate how to prepare a patient for subcutaneous medication administration. ○ 5.8.c.8 - Demonstrate how to measure the required quantity of medication.



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



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



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



Learning Objectives	Embedded Knowledge and Skills
O5.8.1	By the end of the course, the student will be able to: <ul style="list-style-type: none"> ○ 5.8.1.1 - List medical conditions and indications for rectal administration of a medication. ○ 5.8.1.2 - Apply proper calculations for correct medication requirement for the patient presentation. ○ 5.8.1.3 - Identify those approved drugs that are given via rectal routes.
O5.8.m	By the end of the course, the student will be able to: <ul style="list-style-type: none"> ○ 5.8.m.1 - Evaluate medical conditions, and indications for inhalation administration of a medication. ○ 5.8.m.2 - Apply proper calculations for correct medication requirement for the patient presentation. ○ 5.8.m.3 - Distinguish those approved drugs that are given via inhalation. ○ 5.8.m.4 - Discuss the benefit of medication administration via inhalation in comparison to other routes. ○ 5.8.m.5 - Demonstrate how to provide inhalation medications using a sequential step method. ○ 5.8.m.6 - Demonstrate how to prepare a patient for inhalation administration of a medication. ○ 5.8.m.7 - Demonstrate how to measure the required quantity of inhalation medication.
O5.8.n	By the end of the course, the student will be able to: <ul style="list-style-type: none"> ○ 5.8.n.1 - Evaluate medical conditions, and indications for inhalation administration of a medication. ○ 5.8.n.2 - Apply proper calculations for correct medication requirement for the patient presentation. ○ 5.8.n.3 - Distinguish those approved drugs that are given via intranasal route. ○ 5.8.n.4 - Evaluate the benefit of medication administration via intranasal route in comparison to other routes. ○ 5.8.n.5 - Demonstrate how to provide medications by intranasal route using a sequential step method. ○ 5.8.n.6 - Demonstrate how to prepare a patient for administration of a medication via intranasal route. ○ 5.8.n.7 - Demonstrate how to measure the required quantity of medication for administration via intranasal route.



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

GRADING

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

Class Engagement	20%
Test	10%
Midterm Exam	30%
Final Exam	40%

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.

Classroom Protocol: Students are expected to be courteous & respectful of others, and mindful that a classroom is a shared working space with the primary goal of learning.



**OLS
Academy**

Primary Care Paramedicine 2023-24
Term 1 | Block 1 & 2
PCP-107 Therapeutics
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Course Outline

Unnecessary distractions are to be minimized – that includes turning off cell phones and other distracters 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 break.

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

Engagement Points: A student’s engagement will be graded out of 100 (representing 20% of the overall course mark). Students will be evaluated on their attendance and participation in every class. Each class will be worth an equal portion of the total 100 points. (See: *Engagement Rubric* in the Resource Folder.)

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: In order 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. Students can email the instructor at chelsea.greene@omnilifesupport.com.

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