ACP 508, Advanced Pharmacology

3 credits, average one 3-hour classes per week

Course Description

The Advanced Pharmacology course will and principles of Prehospital teach paramedic students advanced concepts and principles of Prehospital drug administration. The student will come to realize the importance of pharmacology and drug therapy as a complex role that sets the advanced life support (ALS) provider.

The paramedic is always reassessing the patient in order to see if interventions are appropriate. The paramedic student will find that the cardiovascular and respiratory systems are always a priority in any patient care. The paramedic student will need to be aggressive in locating and treating the current medical or traumatic condition as they present anywhere, anytime and to any patient.

The Advanced Pharmacology course encompasses knowledge of drug actions, interactions, administration routes, and specific dosages applied to medical and traumatic situations. It will be up to the practitioner to decide if a certain medication is warranted and if the benefits outweigh the negative side effects.

The student will complete most activities through individual and group interaction, which will demonstrate the importance of teamwork. While working within groups the student will learn to create and evaluate algorithms. The algorithms will be designed to treat specific illnesses and injuries that can be used in the prehospital care industry.

Pre-requisites: ACP 501, ACP 502, ACP 503, ACP 505, ACP 509, ACP 516, ACP 517, and ACP 518

Co-requisites: ACP 507 and ACP 511

Instructors

Adam Hiscock ACP

Office: BL253

Emails:

Email: adam.hiscock@keyano.ca

Office Hours

0830 - 1630

Hours of Instruction

45

Resources

Lehne, R. A. (2019). *Pharmacology for nursing care* (10th ed.). Elsevier/Saunders.

Caroline, N. (2021). *Nancy Caroline's emergency care in the streets* (8th ed.). Jones & Bartlett Learning.

Course Outcomes

Upon completion of the Advanced Pharmacology course the ACP student will:

- Value the role of medication administration in providing advanced life support in the prehospital care setting.
- Be responsive and organized in their approach when in charge of medication administration in an advanced life support service.
- Use effective analytical skills in assessing drug therapy intervention options while maintaining a *'do no harm'* philosophy and assessing the '**5 rights of patient medication administration**' in all medication administration.
- Compare and analyze the routes and absorption rates of all emergency medications used in the when providing advanced life support.
- Analyze and apply pharmacology administration knowledge to treat all acute illnesses or injuries for all body systems.
- Be confident in treating toxicology and behavioral emergencies with the appropriate pharmacology as required.
- Provide accurate and precise drug calculations for any medication calculation on any occasion.
- Understand the ACP scope of practice, importance of updating pharmacology knowledge using evidence based practice and standard of care throughout your career.

Evaluation

- Students must achieve a minimum of **75%** for total course grade to progress.
- Midterm and Final Exams require <u>mandatory attendance</u>. Absences will require approval
- Absence from exams and quizzes require informing the instructor prior to class and will be handled based on Policies and Procedures for Keyano College: https://www.keyano.ca/en/about-us/policies-and-procedures.aspx

Evaluation	Grade weight
Module Group Learning Activities • 10% content • 5% participation	15%
Thrombolytic Essay	10%
RSI Research Project	10%
Case studies (2) • 10% each	20%
Midterm Exam • Multiple choice (75 questions)	20%
Final Exam • Multiple choice (100 questions)	25%
Total Course Grade	**100%**

* Multiple-choice exam designed to introduce the student to the Alberta College of Paramedics' style of written examinations

Module Group Learning Activities

The content portion of this mark will be based on the group work completed. The participation mark will be evaluated on an individual student basis. It will be based on the instructor's perception of your participation in classroom discussions and group work. The instructor will be looking for evidence that you are 'participating' in the course learning activities.

Thrombolytic Protocol/Essay

This essay assignment is outlined as part of Module Three. This is a group assignment. The instructor will assign groups.

The students are expected to research and design a thrombolytic therapy protocol that meets the needs of Prehospital and in hospital care for the acute myocardial infarction patient. List the sequential steps that are required to administering thrombolytics.

The essay will describe the benefits and detrimental effects of the current thrombolytics on today's market. Describe the importance of administering the thrombolytic in a short time from the first onset of symptoms. Please show and describe the essential important lab, diagnostic measures, and follow-up and surgical consultation criteria requirements. This assignment requires a minimum of 3 references listed and attached with the final submission. Students are expected to use APA format. The APA format guidelines are provided on-line.

Rapid Sequence Induction (RSI) Research Project

This group project is outlined as part of Module Twelve. The instructor will assign groups. Students will work collaboratively to research and design a RSI Protocol that meets the needs of Prehospital and in hospital care.

The format for presentation of this project is open to the creativity of the group. Goups will be expected to list a minimum of 3 references and attach/link research articles or studies where applicable. Projects will be graded and then posted for the group to review.

Two Case Study Essays (Worth 10% each)

This is an essay assignment. The details of this assignment are outlined in Module Thirteen. Students are encouraged to read these well ahead of time in order to plan and research their approach to the case studies.

The length of these essays should be 1000-2000 words. Students are expected to use APA format. The APA format guidelines are provided on-line.

Learning Activities

Required Readings

Students are to read the identified readings for each Module and relate the content to the learning objectives and activities.

Optional Reading:

Students are encouraged to research the topics in the Modules, and seek other references to expand their current knowledge.

Module Group Learning Activities

All group submissions will be organized, and formatted for publication. Once the instructor has verified information for accuracy, the information posted to all student groups. It is suggested that each group assign a leader to observe the workload and to verify that assignments are completed by the due date. The quality of student work will allow the assignments to be a useable reference in the clinical setting. The intent is to develop the student's ability to research and validate current medical protocols.

Creating an Algorithm

The Advanced Pharmacology course will use algorithms as a training tool. The students will be responsible for the creation and evaluation of multiple algorithms throughout this course.

An algorithm is designed to give patient-care providers a direction to go when treating specific illnesses or injuries. It is important to remember that as the patient's condition changes, so does the algorithm. For example, one specific algorithm may be used when starting on scene treatment of a patient found asystole. If at anytime the patient converts to ventricular fibrillation, the algorithm will need to change to the ventricular fibrillation algorithm.

An algorithm can summarize all available options to avoid confusion and is a great approach to some patient care; however, an educated practitioner must also understand the importance of critical thinking when treating the sick and injured. Critical thinking will prevent tunnel vision and will assist in those situations where variables require the practitioner to move away from the recommended path.

Clinical Rules to Follow When Creating an Algorithm

1. First, "treat the patient", not the monitor

2. Algorithms can only be used for a specific illness or injury.

3. CPR is beneficial and recommended when the pulse is absent in all situations.

4. Use optional interventions whenever they are indicated or required due to the presenting situation.

5. Class I is the acceptable standard treatment and is the common and logical intervention (acceptable, definitely effective treatment)

6. Class II a is normally in the footnotes and is acceptable, probably effective treatment.

7. Class II b is normally also in the footnotes and is acceptable, possibly effective.

8. Class II c is normally in the footnotes and is not indicated, may be harmful.

9. Adequate airway, ventilation's, oxygenation, chest compression, and defibrillation are more important than the administration of any medications or establishing intravenous lines.

10. The ET Tube can be used to give several medications (Narcan, Atropine, Valium, Epinephrine, and Lidocaine)-(NAVEL) at 2-2.5 the regular dose followed by several BVM ventilation's.

11. After every IV medication, follow it with 20-30 mL of N. S. or R. L. IV therapy.

12. Elevate the extremity post medication injection.

13. Bolus or rapid infusions should be with R. L. or N. S. only.

14. Defibrillation is the most important treatment in VF or Pulseless VT in any situation.

15. End tidal CO_2 is very important for all intubated patients.

16. Sp02 and end tidal CO_2 detectors are mandatory for any patient with an altered LOC, intubated, or an Airway – Breathing – Circulatory problems.

Performance Requirements and Student Services

Student Responsibilities
It is your responsibility as a student to contact the Office of the Registrar to complete the forms for Withdrawal or Change of Registration, and any other forms. Please refer to the list of important dates as noted in the Academic Schedule in the Keyano College credit calendar. The Keyano College credit calendar also has information about Student Rights and Code of Conduct. It is the responsibility of each student to be aware of the guidelines outlined in the Student Rights and Code of Conduct Policies.

Student Attendance
Class attendance is useful for two reasons. First, class attendance maximizes a student's learning experience. Second, attending class is a good way to keep informed of matters relating to the administration of the course (e.g., the timing of assignments and exams). Ultimately, you are responsible for your own learning and performance in this course.

It is the responsibility of each student to be prepared for all classes. Students who miss classes are responsible for the material covered in those classes and for ensuring that they are prepared for the next class, including the completion of any assignments and notes that may be due.

Academic Misconduct
Students are considered to be responsible adults and should adhere to principles of intellectual integrity. Intellectual dishonesty may take many forms, such as:

- Plagiarism or the submission of another person's work as one's own;
- The use of unauthorized aids in assignments or examinations (cheating);
- Collusion or the unauthorized collaboration with others in preparing work;
- The deliberate misrepresentation of qualifications;
- The willful distortion of results or data;
- Substitution in an examination by another person;
- Handing in the same unchanged work as submitted for another assignment; and
- Breach of confidentiality.

The consequences for academic misconduct range from a verbal reprimand to expulsion from the College. More specific descriptions and details are found in the Student Rights and Code of Conduct section of the Keyano College credit calendar. It is the responsibility of each student to be aware of the guidelines outlined in the Student Rights and Code of Conduct Policies.

In order to ensure your understanding of the concept of plagiarism, you must successfully complete the online tutorial found on ilearn.keyano.ca. Then print the certificate, sign it, and show it to each of your instructors. Your course work may not be graded until you show this signed certificate.

Specialized Supports
The Student Services Department is committed to Keyano students and their academic success. There are a variety of student supports available at Keyano. Due to the continuing situation with the Covid-19 pandemic, the offered support services will be implemented through a model to respond to the restrictions in force at the time. In-person and virtual services will be offered. All Alberta Health Services guidelines will be followed for in-person appointments—wear a mask, maintain two meters of physical distance, use hand sanitizer, and stay home if you are unwell.

All student services are available during Keyano business hours: Monday to Friday, 8h30-16h30. The College is closed for statutory holidays. If you require support outside of regular business hours, please inform the support service team, and we will do our best to accommodate your needs.

Accessibility Services: provides accommodations for students with disabilities. Students with documented disabilities, or who suspect a disability, can meet with a Learning Strategist to discuss their current learning barriers and possible accommodations. Students who have accessed accommodations in the past are encouraged to contact us to request them for the semester. Please note that requesting accommodations is a process and requires time to arrange. Contact us as soon as you know you may require accommodations. For accessibility supports and to book an appointment, please contact accessibility.services@keyano.ca.

Accessibility Services also provides individual and group learning strategy instruction for all students, as well as technology training and supports to enhance learning. Meet with a Learning Strategist to learn studying and test-taking strategies for online classes. Schedule an appointment with the Assistive Technology Specialist to explore technology tools for learning. Book an appointment today by emailing accessibility.services@keyano.ca

Wellness Services: offers a caring, inclusive, and respectful environment where students can access free group and individual support to meet academic and life challenges. Mental Health Coordinators offer a safe and confidential environment to seek help with personal concerns. Students may access services virtually and in-person.

Wellness Services welcomes students to participate in any of the group sessions offered throughout the academic year addressing topics including mindfulness and test anxiety.

Individual appointments can be made by emailing wellness.services@keyano.ca.

Library Services: provides students with research and information supports as they engage in their studies. Library staff are available to support you both online and in-person throughout the semester. For a detailed list of library supports and services, go to www.keyano.ca/library. For all inquiries, please email askthelibrary@keyano.ca or chat with us online.

Begin your research with the Library's FIND page. Search for information and sources for your assignments using the OneSearch, the Library's Catalogue, or by searching in a specific database selected from the A-Z Database List.

Individual support with us is available. For support with citations, research and other information needs, appointments can be booked using the online Book A Librarian Calendar. For support with Moodle, educational tools for assignments, Microsoft Office, Zoom, Teams and more, book an appointment using the online Educational Technology Support Calendar.

Research and subject guides are helpful resources when beginning your research, assignment, using new educational technology, or addressing other information needs. To view a subject or course-specific guide, check out the complete listing of online Subject Guides.

To access additional research resources, including Citation Guides (APA, MLA, Chicago, or IEEE), go to the Research Help Library page.

The Loanable Technology collection is available to support students in their learning pursuits, whether online, in person or both. Items available for borrowing include mobile projectors, webcams, noise-cancelling headphones, Chromebooks, and laptops. For an up-to-date list of technology available for borrowing as well as support available, go to the Library's Loanable Technology webpage.

Academic Success Centre: The Academic Success Centre is a learning space in the Clearwater Campus (CC-119) at Keyano College. Students can gather to share ideas, collaborate on projects, get new perspectives on learning from our Academic Content Specialists, or use the Centre's educational resources. The Academic Success Centre provides academic support services to students registered in credit programs at Keyano College in the form of individual tutoring, writing support groups, facilitated study groups, workshops, and study space. Services are **free** to Keyano students.

Academic Content Specialists are available in the areas of Math, Science, Human Services, and English/Humanities. This covers all courses offered at Keyano. The Academic Success Coach can also be found in the Academic Success Centre.

For the most up to date information on how to book a session, please view the Keyano Academic Success Centre homepage.

> **Academic Integrity:** The goal of the Academic Success Centre is to foster a student's ability to learn effectively and independently. Students registered at Keyano College are welcome to drop by the Centre to visit with any of our Academic Content Specialists to discuss their academic concerns.
>
> **Availability:** Monday to Friday: 8:30 a.m. – 4:30 p.m. Flexible times may be available upon request. Virtual and in-person sessions, please email to get in contact with our Academic Content Specialists. For the most up to date information on how to book a session, please view the Academic Success Centre homepage.

Academic Success Coach: offers you support and access to resources for your academic success to help you to find the Keys to your Success. The Academic Success Coach will work with you to develop an academic success plan, develop your study and time management skills, and connect you with the right resources here at Keyano. Academic.success@keyano.ca is the best way to access resources during blended service delivery. The Academic Success Coach is located in the Skill Centre in CC-119 at the Clearwater Campus.

E-Learning
Technology and internet will impact your online learning experience. It's important that you can watch an online video and other course materials, take online quizzes and participate in a live class with your instructor and other students. Live/virtual classes will be hosted in Microsoft Teams or Zoom.

For all course delivery types, you will access your course resources on Keyano's learning management system, **Moodle (iLearn).** Login in using your Keyano username and password.

Keyano College operates in a Windows based environment, and having the correct tools for online learning is important. Here's a list of recommended system requirements.

Internet Speed
Minimum Internet speeds of 10 Mbps.

Recommended Internet speeds of 25 Mbps (especially if you are sharing your internet at home).

Check your internet speed with Fast.com.

System requirements:

Microsoft Windows	Apple
Minimum Requirements: A Windows 10 **computer/laptop** · Minimum 4GB of RAM. · 10GB+ available hard drive storage. · Enough available hard drive space to install the Microsoft Office suite (approximately 3GB). Microsoft Office software is free to all Keyano students and employees. · Microphone, webcam and speakers. A headset with a microphone is recommended. · System updates must be regularly installed. · Anti-Virus / Anti-Malware software	**Minimum Requirements:** A Macintosh (V10.14 and above) **computer/laptop** · Minimum 4GB of RAM. · 10GB+ available hard drive storage. · Enough available hard drive space to install the Microsoft Office suite (approximately 3GB). Microsoft Office software is free to all Keyano students and employees. · Microphone, webcam and speakers. A headset with a microphone is recommended. · System updates must be regularly installed. · Anti-Virus / Anti-Malware software.
Recommended Requirements · 8GB of RAM · A method of backing up/synchronizing to local or cloud-based storage such as OneDrive is highly recommended. This is included if you complete the setup of KeyanoMail and download MS Office using your Keyano email for free.	**Recommended Requirements** · 8GB of RAM · A method of backing up/synchronizing to local or cloud-based storage such as OneDrive is highly recommended. This is included if you complete the setup of KeyanoMail and download MS Office using your Keyano email for free.

Chromebooks are **not** recommended as they are not compatible with testing lockdown browsers.

A Microsoft Surface or iPad or iPad Pro may be possible alternatives in some program areas.

Specific Department Requirements:
Business and OA programs require Windows 10.
Other programs may utilize Windows based tools as well.

Computer Software
Students will be able to get access to Microsoft Office 365 for free using Keyano credentials by clicking here.

Recording of Lectures and Intellectual Property
Students may only record a lecture if explicit permission is provided by the instructor or by Accessibility Services. Even if students have permission to record a lecture or lecture materials, students may not share, distribute, or publish any of the lectures or course materials, this includes any recordings, slides, instructor notes, etc. on any platform. Thus no student is allowed to share, distribute, publish or sell course related content (instructor, or students) without permission. It is important to recognize that the Canadian Copyright Act contains provisions for intellectual property.

The <u>Academic Integrity Policy</u> provides additional information on Keyano College's expectations from students as members of the intellectual community.

ITS Helpdesk
If you are having issues with your student account, you can contact the ITS Helpdesk by emailing its.helpdesk@keyano.ca or calling 780-791-4965.