1 Course Details

1.1 Calendar Description

This course provides the general principles, pharmacologic basis, and practical applications of general and local anaesthesia in small and large animals. Other topics covered include fluid and acid-base imbalance and the prevention and treatment of surgical shock.

Pre-Requisite(s): All Phase 1 courses.
Co-Requisite(s): All Phase 2 courses.

1.2 Course Description

This course presents the general principles, pharmacologic basis, and practical applications of general and local anesthesia in small and large animals. Other topics covered include the prevention and treatment of fluid and acid-base imbalance and surgical shock, as well as pharmacological aspects of drugs used in the treatment of infection, seizures, behavioral disorders and disorders of the blood.

1.3 Timetable

Timetable is subject to change. Please see WebAdvisor for the latest information.

1.4 Final Exam

Exam time and location is subject to change. Please see WebAdvisor for the latest information.

2 Instructional Support

2.1 Instructor(s)

Ron Johnson
Email: rjohns03@uoguelph.ca
Telephone: +1-519-824-4120 x54041

Melissa Sinclair
2.2 Instructional Support Team

Course Co-ordinator: Alexander Valverde
Email: valverde@uoguelph.ca
Telephone: +1-519-824-4120 x54442
Office: OVCP 2159

3 Learning Resources

Course notes, video clips and other resources will be posted on the course website according to unit/topic. Individual instructors will do this in advance of their lectures or labs. Any supplemental information will be clearly noted.

Textbooks on veterinary anesthesiology and pharmacology may be purchased at the student’s discretion but are not required. Students should purchase a veterinary drug handbook of their choice (these will be briefly discussed in class).

4 Learning Outcomes

This course is divided into units with these specific goals that will be provided with each lecture.

Units:
Pharmacology (Pharmacokinetics/Pharmacodynamics, Autonomic Pharmacology, Neuromuscular Pharmacology, Sedatives, Opioids, Anti-inflammatories, Local Anesthetics, Antimicrobials, Behaviour Modifying Drugs, Anticonvulsants)

Analgesia

Local anesthetic techniques (Large Animals, Small Animals)

Anesthetic equipment (Equipment, Circuits and Flows)

General Anesthesia (Inhalants, Injectables, Techniques, Applied Kinetics, Records, Monitoring, Large Animals, Small Animals)

Fluids (Fluid Therapy, Acid-Base, Shock)

Euthanasia

Special Cases and Management

4.1 Course Learning Outcomes

By the end of this course, you should be able to:

1. **ANESTHESIA**
   
   1. Know the mechanism of action of sedatives, anesthetics, and analgesics
   2. Compare and contrast the actions, case applications, and adverse effects of drugs used for sedation, analgesia and general anesthesia in core healthy veterinary species by selecting the most appropriate anesthetic and analgesic protocols
   3. Describe the pathophysiological changes associated with general anesthesia and identify the approaches used to reduce the minor and major negative impacts of general anesthesia
   4. Describe the components of pain physiology, associated pain management pharmacology, and technical methods for general surgery
   5. Conduct the drug and fluid calculations in order to appropriately select and administer accordingly
   6. Describe the components of acid base physiology and interpret basic derangements
   7. Outline the components, list and assemble the parts of an inhalant anesthetic machine, rebreathing equipment, endotracheal intubation, and intravenous catheterization supplies
   8. Conduct endotracheal intubation, intravenous catheterization, anesthetic monitoring, local anesthetic techniques, and safe anesthetic recovery

2. **PHARMACOLOGY OF NON-ANESTHETIC DRUGS**

   1. Know the beneficial effects, mechanisms of action, and main adverse effects of selected major classes of anticonvulsants, antimicrobial agents, and drugs used to treat behavioural and blood disorders
### 5 Teaching and Learning Activities

**2018-2019 Schedule for Anesthesia Pharmacology VETM 3470**

**FALL SEMESTER**

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<td>PK/PD6</td>
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<td>ADR2</td>
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<td>Neuromusc Pharm</td>
<td>NM blockers/relaxant</td>
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**THANKSGIVING AND STUDY BREAK**

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**Quiz #1 Up to and including “Sedatives 2” (7.5%)**

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<td>Sedation/Premed</td>
<td>SA Premed 2</td>
<td>Sinclair</td>
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24. Lecture  Sedation/Premed  LA Sedatives  Sinclair
25. Lecture  Analgesia  Analgesia 1  Valverde
26. Lecture  Analgesia  Analgesia 2  Valverde
27. Lecture  Analgesia  Local Pharmacol  Hanna
1. Activity  Sedation/Premed  CBL Session 1  Sinclair
1. Activity  Sedation/Premed  CBL Session 1  Sinclair
1. Activity  Sedation/Premed  CBL Session 1  Sinclair
1. Activity  Sedation/Premed  CBL Session 1  Sinclair
28. Lecture  Analgesia Local  Anesth Tech  Sanchez
29. Lecture  Analgesia  Analgesia 3  Valverde
30. Lecture  General Anesthesia  IV Anesth Pharm 1  Hanna
31. Lecture  Anesth Equipment  Anesth Equipment  Valverde
32. Lecture  General Anesthesia  IV Anesth Pharm 2  Hanna
33. Lecture  General Anesthesia  General Anesthesia 1  Valverde
34. Lecture          General Anesthesia          General Anesthesia 2  Valverde

1. Laboratory       Analgesia Local             Local Block Lab SA  Sanchez

1. Laboratory       Analgesia Local             Local Block Lab SA  Sanchez

35. Lecture          General Anesthesia          General Anesthesia 3  Valverde

36. Lecture          General Anesthesia          Inhalant Pharmacol  Hanna

1. Laboratory       Analgesia Local             Local Block Lab LA  Sanchez

1. Laboratory       Analgesia Local             Local Block Lab LA  Sanchez

37. Lecture          Anesth Equipment           Circuits and Flows  Valverde

2. Laboratory       Anesth Equipment           Anes
    Machine/CircuitsLab  Valverde

2. Laboratory       Anesth Equipment           Anes
    Machine/CircuitsLab  Valverde

Quiz #2 From Preop Evaluation up to and including “Circuits and Flows” (7.5%)
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<td>Drugs re: Blood</td>
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53. Lecture  Anticonvulsant Pharm  Anticonvulsants 1  Hanna
54. Lecture  Anticonvulsant Pharm  Anticonvulsants 2  Hanna

WINTER BREAK

55. Lecture  Fluids  Fluids 1  Valverde
56. Lecture  Fluids  Fluids 2  Valverde
57. Lecture  Acid-Base  Acid-Base 1  Valverde

Quiz #3 From “Records/Monitoring” up to and including “Anticonvulsants 2” (7.5%)

5. Laboratory  Sedation/Analgesia  LA Sedation/Locals  Valverde
5. Laboratory  Sedation/Analgesia  LA Sedation/Locals  Valverde

58. Lecture  Acid-Base  Acid-Base 2  Valverde
59. Lecture  Fluids  Shock Pathophys 1  Bateman
60. Lecture  Fluids  Shock Pathophy 2  Bateman

5. Laboratory  Sedation/Analgesia  LA Sedation/Locals  Valverde

61. Lecture  Euthanasia  Euthanasia  Sanchez
62. Lecture  Special Cases  Respiratory  Sanchez

5. Laboratory  
Valverde  
**Sedation/Analgesia**  LA Sedation/Locals

63. Lecture  Special Cases  Cardiovascular  Sanchez

64. Lecture  Special Cases  Other  Sanchez

2. Activity  
GA/Fluids  CBL Session 2  Sinclair

2. Activity  
GA/Fluids  CBL Session 2  Sinclair

2. Activity  
GA/Fluids  CBL Session 2  Sinclair

2. Activity  
GA/Fluids  CBL Session 2  Sinclair

65. Lecture  Debrief Clinical Qs, Cases  Valverde

**Quiz #4 From “Fluids 1” up to and including “Special Cases- Other” (7.5%)**

**FINAL EXAM 0900-1200 1800/1810 (54%)**

**6 Assessments**

Students must achieve an **overall course grade** (formative tests + CBL + final exam) of at least 50% in order to pass the course.

**Attendance to all laboratories is MANDATORY**

**6.1 Assessment Details**
Quizzes (30%)  
4 Quizzes: 30% of the course grade (7.5% each)
Quiz # 1- From “Introduction” lecture, up to and including “Sedatives 2” lecture.
Quiz # 2- From “Preop Evaluation” lecture, up to and including “Circuits and flows” lecture.
Quiz # 3- From “Records/Monitoring” lecture, up to and including “Anticonvulsants 2” lecture.
Quiz # 4- From “Fluids 1” lecture, up to and including “Special Cases- Other” lecture.

If at all necessary, only one (1) Quiz can be missed during the course. If Quizzes 1, 2 or 3 are missed (the student having been granted academic consideration), the next Quiz will count for both Quizzes (15% instead of 7.5%). If Quiz 4 is missed (the student having been granted academic consideration), the mark for the final exam will include the mark for the Quiz so that the final examination will count for 61.5% instead of 54% of the course grade.

Students who miss a Quiz for reasons not approved by the Dean’s Office will be assigned a grade of zero for that test.

2 CBL Sessions (16%)  
2 CBL Sessions: 16% (8% each)

Final examination (54%)  
Final examination: 54% of the course grade.

The final examination is 3 hours in duration and will be administered as scheduled in the Phase 2 timetable. A grade of at least 50% must be obtained on this exam to pass the course. A student who scores less than 50% on this examination, and whose overall grade for the course is less than 50%, will be deemed to have failed the course. A student who scores less than 50% on this examination, but whose overall course grade is 50% or higher, will be assigned a grade of incomplete (INC). The latter student will be required to undertake a conditional examination set by the course coordinator. The conditional exam will require further study of the subject during the summer semester. A student who achieves a grade of 50% or higher on this conditional examination will be deemed to have passed the course and will receive their original course grade. A student who achieves a grade of less than 50% on this conditional exam will be deemed to have failed the course and will be assigned a course grade of 49%.

Remedial work may be assigned if poor performance is observed in any area of the course (to be determined by instructors involved). All assigned work (activities assigned on the Courselink website, including Case Base Learning [CBL] and Laboratories), and any remedial work, must be completed and approved to pass this course. If any course requirements have not been met by the end of the final exam period the course grade will be recorded as “incomplete.” If any requirements remain unfulfilled as of July 1st, a maximum course grade...
of 49% will be assigned and the student will be deemed to have failed the course.

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### 7 Course Statements

#### 7.1 Administrative Information

For questions regarding academic consideration, continuation of study, academic misconduct, safety, confidentiality, and experiential learning involving use of animals, please refer to the appropriate Phase 2 web documents on the OVC website.

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### 8 University Statements

#### 8.1 Email Communication

As per university regulations, all students are required to check their e-mail account regularly: e-mail is the official route of communication between the University and its students.

#### 8.2 When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. The regulations and procedures for Academic Consideration are detailed in the Undergraduate Calendar.

#### 8.3 Drop Date

Courses that are one semester long must be dropped by the end of the fortieth class day; two-semester courses must be dropped by the last day of the add period in the second semester. The regulations and procedures for Dropping Courses are available in the Undergraduate Calendar.

#### 8.4 Copies of Out-of-class Assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

#### 8.5 Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required, however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be
noted that common illnesses such as a cold or the flu do not constitute a disability.

Use of the SAS Exam Centre requires students to book their exams at least 7 days in advance, and not later than the 40th Class Day.

More information: www.uoguelph.ca/sas

8.6 Academic Misconduct

The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of all members of the University community – faculty, staff, and students – to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The Academic Misconduct Policy is detailed in the Undergraduate Calendar.

8.7 Recording of Materials

Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

8.8 Resources

The Academic Calendars are the source of information about the University of Guelph’s procedures, policies and regulations which apply to undergraduate, graduate and diploma programs.