COURSE SYLLABUS
Veterinary Pharmacology I (VTPP) 924
Fall 2017

Learning Goals for the Course

The overarching goal for this course is for you to be able to explain and perform the decision-making process to consider drugs for resolving or minimizing a physiological or infectious alteration in a patient. More specific learning goals are provided on the next page and will also be reviewed periodically in class.

Course instructors

Dr. Virginia Fajt, VTPP, VIDI 334, vfajt@cvm.tamu.edu
Dr. Carly Patterson, VTPP, VIDI 315, cpatterson@cvm.tamu.edu

Guest instructors

Dr. Beth Boudreau, VSCS
Dr. Michelle Coleman, VLCS
Dr. Audrey Cook, VSCS
Dr. Stacy Eckman, VSCS
Dr. Pippa Gibbons, VLCS
Dr. Sonya Gordon, VSCS
Dr. Joanne Hardy, VLCS
Dr. Justin Heinz, VSCS
Dr. Katrin Hinrichs, VTPP
Dr. Sharon Kerwin, VSCS
Dr. Jonathan Lidbury, VSCS
Dr. Brigitte McAtee, VSCS
Dr. Cristobal Navas de Solis, VLCS
Dr. Adam Patterson, VSCS
Dr. Juan Romano, VLCS
Dr. Christine Rutter, VSCS
Dr. Lucien Vallone, VSCS
Dr. Canaan Whitfield, VLCS

Lectures Monday 10:00 – 10:50 AM
Wednesday 9:00 – 10:50 AM
Friday 9:00 – 9:50 AM
VENI 106A

Monday Lab M 1 – 2:50 PM (Groups B, D)
M 3 – 4:50 PM (Groups A, C)
VIDI 103 except as noted on schedule

Credit Hrs 5

Required *Plumb's Veterinary Drug Handbook, Eighth Edition, 2015* – **THIS BOOK WILL BE PROVIDED COMPLIMENTS OF TVMA**.

Moodle course website at http://moodle.cvm.tamu.edu

Suggested *Veterinary Pharmacology and Therapeutics*, 9th edition; Jim E. Riviere and Mark G. Papich, eds; Wiley-Blackwell, 2009 – **ON RESERVE IN LIBRARY**

LEARNING GOALS

Each learning goal listed below also includes the dimension(s) associated with it, with the 4 important dimensions in this course being foundational medical knowledge [FK], application and integration [A&I], human dimensions of medicine [HD], and lifelong learning [LL]. When reviewing course material, focus your study time on being able to perform the following:

Building blocks for New Graduate Outcomes	***New Graduate Outcomes***
• list a range of potential therapeutic options for a given diagnosis **[FK]** • weigh the potential benefits and risks of the available therapeutic options and consider the feasibility of implementation, owner compliance, and the financial constraints of the client for a given patient **[A&I, HD]** • formulate a comprehensive therapeutic plan for medical and surgical problems based upon the diagnosis for common domestic species **[A&I]** • communicate the therapeutic options to the client in a manner that is readily understood, promotes adherence to recommendations, and facilitates the selection of a treatment option **[A&I, HD]**	*2.1 The graduate will formulate a comprehensive therapeutic plan for medical and surgical problems based upon their diagnosis for common domestic species*
• classify common anesthetic and perianesthetic agents and explain their mechanisms of action, pharmacologic properties, and physiologic effects on the patient **[FK, A&I]** • evaluate pertinent patient information to formulate a safe and effective preanesthetic and anesthetic protocol for common procedures based on patient signalment, clinical examination findings, patient risk factors, financial considerations of the owner, and feasibility (e.g., equipment, personnel, competence) **[A&I, HD]** • predict the expected degree of pain and employ an appropriate anesthetic protocol in order to adhere to appropriate standards of patient care with regard to the prevention and alleviation of pain **[A&I]**	*3.1 The graduate will recognize the need for sedation and anesthesia and evaluate the pertinent patient information in order to formulate an appropriate anesthesia protocol in common domestic species*
• identify risks posed to patients and their handlers during the anesthetic period (i.e., before, during, and after surgery) and employ appropriate actions to reduce these risks and minimize potential patient complications **[A&I]**	*3.2 The graduate will apply an appropriate anesthesia protocol to induce, maintain, and recover patients from anesthesia following current veterinary medical standards for common domestic species*
• explain the physiology of pain and apply knowledge of anatomy to recognize the clinical signs associated with pain in all common domestic species **[FK, A&I]** • list the classes of drugs that can be used to control pain, describe their mechanism of action, and describe the adverse reactions that may occur as a result of these actions **[FK]** • construct a pain management plan that matches the type and level of pain being experienced by the patient with the appropriate class, dose, and route of administration of drug to effectively alleviate the pain **[A&I]**	*3.3 The graduate will recognize the clinical signs associated with pain in all common domestic species, assess the type of pain, classify the level of pain, formulate a pain management plan, and apply a therapy to effectively prevent and alleviate animal suffering and pain*

• weigh the benefits of pain management against the potential complications of pharmaceutical intervention when developing a pain management plan **[A&I, HD]**	
• classify common therapeutic veterinary products that can be used to stabilize patients and explain their mechanisms of action, pharmacologic properties, and physiologic effects on the patient **[FK]** • formulate an appropriate treatment plan to attempt patient stabilization, taking into account the benefits and risks, prognosis, and financial considerations of the owner **[A&I, HD]**	*6.1 The graduate will recognize the clinical signs associated with a patient emergency in all common domestic species and formulate an appropriate emergency protocol in order to rapidly assess and stabilize the patient*
• classify common therapeutic veterinary products used to manage patients requiring intensive care and explain their mechanisms of action, pharmacologic properties, and physiologic effects on the patient **[FK]**	*6.3 The graduate will recognize patient conditions that require intensive care, appraise the level of care required, and implement appropriate treatment protocols, including managing the transfer or referral of a patient to another facility when indicated*
• explain the principles of pharmacokinetics that are applied to develop drug withdrawal times **[FK, A&I]** • recognize the potential risks of animal feed contamination with biological/chemical adulterants **[A&I]** • formulate drug treatment plans that support the judicious use of antimicrobials to minimize antibiotic resistance **[A&I]** • communicate effectively with clients and producers in order to promote compliance with food safety standards **[A&I]**	*7.5 The graduate will apply knowledge of noninfectious adulterants in the human and animal food supply to effectively promote and maintain a safe food supply*
• explain common mechanisms leading to the development of antimicrobial resistance in common pathogens **[FK, A&I, HD**]	*7.6 The graduate will participate in transdisciplinary efforts to safeguard human, environmental, and animal health to demonstrate the veterinary role in the One Health triad*
• recognize the importance of conducting themselves in an ethical manner in order to maintain the overall well-being of the veterinary profession **[HD]**	*8.2 The graduate will demonstrate professional conduct*
• recognize the importance of evidence-based medicine and apply its principles to the practice of veterinary medicine **[A&I, LL]**	*9.1 The graduate will identify, review, and critically evaluate biomedical literature and apply it to the practice of contemporary, evidence-based veterinary medicine*
• demonstrate professional behavior consistently when interacting with other members of the health care team **[HD]** • evaluate other members of the health care team and provide appropriate feedback to ensure professional behavior with clients and colleagues **[HD]**	*10.1 The graduate will operate effectively with other members of a health care team and the general public*
• describe which drugs and uses of drugs are legal and illegal for use in Texas and the United States in common domestic species **[FK, HD]**	*12.1 The graduate will recognize the legal responsibilities of the veterinarian in relation to patients, clients, society, and the*

• read and interpret a drug label and apply the information to make a legal and clinically-appropriate drug decision **[FK, A&I]** • recognize the need to obtain and maintain valid licensure for handling controlled substances **[HD]** • explain the process used to report adverse drug and vaccine reactions to the appropriate regulatory agency (e.g., EPA, USDA, FDA) **[HD]** • describe the sources that can be used to determine if a drug is legal for use in common domestic species at the state and federal levels **[LL]**	*environment and operate within these professional parameters*
• locate and utilize the AVMA Guidelines for Euthanasia **[A&I, HD, LL]**	*13.3 Determine when euthanasia is an appropriate option for a patient or population, effectively communicate the option with owners, and describe how to perform euthanasia safely, effectively and humanely*

General Course Policies

1. For many years Aggies have followed a Code of Honor which is stated in this very simple verse: **Aggies do not lie, cheat, or steal or tolerate those who do.** *Since the integrity of the veterinary medical profession is a reflection of the sum of the integrity of its members, veterinary medical students should conduct themselves toward colleagues, faculty, staff, clinical patients, clients and the public in an exemplary ethical and professional manner.* Scholastic dishonesty, in any form, will not be tolerated. There is no situation that warrants cheating and all professional students are expected to uphold complete scholastic honesty and integrity and should never consider cheating. Scholastic dishonesty includes, but is not limited to, looking at examination of another student, consulting notes or references during an examination, providing information or seeking information from another student during an examination or between laboratory and written examination sessions, accessing an unauthorized website during an examination, plagiarism, etc. (For more information: Office of the Aggie Honor System, phone number 458-3378, 102 Henderson Hall or http://aggiehonor.tamu.edu).

   Whether or not the following statement is included on examinations, research papers, and other academic work, students are required to adhere to the meaning of the following statement: **On my honor, I have neither given nor received any aid on this academic work.** This pledge serves as both a commitment to scholastic integrity and as a reminder to the student and the instructor of the College Honor Code. Absence of the signed pledge does not remove an examination from coverage by the College Honor Code. ***The instructor reserves the right to dismiss from the course and administer a course grade of 'F' to any student involved in incidents of scholastic dishonesty.***

   See additional information about scholastic integrity and scholastic dishonesty on exams below in the section on Exam Policies.

2. All written material, some of the graphics in notes and handouts, and all materials posted on eCampus and ExamSoft are copyrighted and are the property of Drs. Fajt or Patterson unless

otherwise indicated. **Any attempts to copy, capture, or distribute material from the course website or printed materials, including but not limited to quiz questions, quiz feedback, notes, PowerPoint slides, and published articles, will be considered honor code violations.** Thank you for your commitment to preserving academic integrity at the College of Veterinary Medicine.

3. We will do our best to provide an opportunity for students to review exams, but we will not be providing individual reviews of quizzes. We will instead provide in-class feedback on quiz questions.

4. Students are responsible for monitoring their e-mail in a way that assures that course communications are appropriately reviewed.

5. Course information, lecture materials, and readings will be posted on Moodle, which can be accessed at http://courses.tamuvet.org. Students are expected to stay up-to-date with postings on the course website.

6. See the course schedule for the topic of the Monday Exercises, which will involve small group learning and case-based application of material covered in class. Please bring your Plumb's Drug Handbook to those Monday sessions.

7. As a courtesy to your professors and classmates, we request that the use of electronic devices be limited to class activities; laptops, in particular, can be distracting to those around you. YOUR LEARNING WILL SUFFER IF YOU ARE SURFING, TEXTING, or otherwise NOT PAYING ATTENTION to course materials IN CLASS. If inappropriate electronic device use is distracting or disturbing, please contact Dr. Fajt or Dr. Patterson.

8. Electronic communication has made our lives easier and communication more rapid. Please adhere to the following to facilitate communication with instructors:
   a. We recommend that you try to avoid using e-mail for questions about course content and concepts. This type of communication is much better and often more efficiently accomplished face to face, whether in class, immediately after class, in the hallway, or in an instructor's office. E-mails are best used for setting up appointments or communicating logistical information, such as notifications about missing class.
   b. If you have a question about the schedule or other course information, review the syllabus and other course materials prior to e-mailing the instructor to see if your question is answered there.
   c. The subject line for all electronic communication should begin with "VTPP 924" to alert instructors to the purpose of your message.
   d. E-mails will not be read immediately; most instructors set aside time each week to review student emails in an orderly fashion, so you should not expect an immediate response.
   e. If you are using e-mail to set up an appointment, please include when you are available. For example, you might say: "Dr. Fajt/Patterson, I would like to make an appointment to talk about the next quiz. I am available from 1-3 on Wednesday and 10-11 on Friday this week."

9. We have a policy of refusing requests for authorized absences. As adults, you can make your own decisions about when to attend class. We do not take attendance, and we reserve the right to administer pop quizzes at any time during the course. We recognize that there are many opportunities aside from your courses to improve your skills or enhance your professional

education, and we applaud any and all efforts on your part to participate in those opportunities. However, we require you to make your own choices about which activities are more important than class time. If you have questions about the difference between authorized and excused absences, see the Professional Student Handbook.

10. The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you believe you have a disability requiring an accommodation, please see the course coordinator and contact the Department of Student Life Services for Students with Disabilities (Cain Hall, Room B118, 845-1637) at the beginning of the semester.

11. All students are requested and expected to complete the web-based CVM Course Evaluation form near the end of the semester. Students will be notified by e-mail and in class when the evaluation forms are to be completed. Information gathered from these evaluations is critical to quality control of the veterinary curriculum.

12. The University has established a formal process for handling of student grievances associated with any course. A "Classroom Communication Form" is available from the VTPP departmental office that may be completed and submitted to the department head should there be major concerns about the conduct of the course.

Grade Composition:

Quizzes (13 quizzes, drop 2 lowest, 11 pts each)	121 pts
Exam 1	33 pts
Exam 2	33 pts
Exam 3	44 pts
Exam 4 (during Finals Week)	44 pts
Lab Questions of the Week (13 labs, drop 1, 4 pts each)	48 pts
TOTAL	**323 pts**

1. Thirteen quizzes will be given during the semester, and your lowest two quiz scores will be dropped. If you have to miss class on a quiz day for an unexcused absence, that quiz can be dropped. If you need to leave class immediately after a quiz, for an excused or unexcused absence, notify the instructors beforehand and sit in the front of the classroom to reduce disruption.
2. When quizzes are being administered, remain seated until everyone has completed their quiz.
3. Every laboratory will have a "Question of the Week" which is due AT THE END OF THE LABORATORY PERIOD. It must be turned in before you leave in order for you to receive full credit.
4. All iClicker questions will be for extra credit. In order to receive this extra credit, you will need to attempt to answer at least 80% of all the questions or assignments administered during the semester. If you attempt at least 80% of the clicker questions, **3 points** (not 3 percent) will be added to your total semester percentage. This extra credit will NOT be available if your final grade before the clicker questions is below 70%.
5. If, at any point in the course, your average is below 72%, we strongly encourage you to speak with Dr. Fajt and Dr. Patterson to seek assistance in mastering course concepts. Waiting until late in the

semester to seek assistance often does not yield the mastery required to be successful in the course.

6. Grades will be assigned as follows:

A	290 – 323
B	257 – 289
C	225 – 256
D	209-224
F	< 209

As detailed in the CVM student handbook, accumulation of any combination of two "D"s and one "F" in three courses will result in dismissal from the professional curriculum.

Exam Policies:

1. Learning outcomes and information outlines in the decision-making map are the best guide for focusing your study efforts. Do not try to indiscriminately memorize all the information in the reading or presented on slides in class.
2. Responsibility for drug names will be limited to generic, not proprietary, names unless you are told otherwise for a particular section. For example, the drug xylazine (generic name) is marketed under several proprietary names including Rompun®, AnaSed®, and Sedazine®. Students are only responsible for the generic name unless the instructor indicates otherwise.
3. Exams and quizzes will be administered in ExamSoft. You should have received a copy of 2VM exam policies.
4. Should an exam or quiz be missed for an **excused** absence, a make-up exam will be provided. Excused absences should be documented through the Dean's Office according to CVM and University policy. Oral make up exams may be used. The student should contact the instructor upon return to classes to schedule the make-up exam.
5. Exams may be made available for review during class time or other scheduled time. No notes may be taken during exam review.

All examinations in this course are closed book, closed note, and closed neighbor exams. Video recording devices and other technological means may be used to supplement documentation of acts involving Scholastic Dishonesty. The instructors of this course regard Scholastic Dishonesty as a very serious offense and disciplinary action will be taken. Sanctions will include a grade of zero on the examination and a grade of "F" or "F*" in the course. Upon appeal of an accusation of Scholastic Dishonesty, the Honor Council can institute additional sanctions including separation from the University.

TENTATIVE SCHEDULE

Day	System	Therapeutic goals	Drugs	
Mon Aug 21	Multiple	Introduction to drug decision-making and course learning outcomes		VF
Mon Aug 21: LAB		*NO LAB*		
Wed Aug 23: 1	Multiple	Basic concepts of drug delivery and disposition *[TVMA presents drug handbook]*		VF
Wed Aug 23: 2	Multiple	Basic concepts of adverse effects		VF
Fri Aug 25	Reproduction	•prevent ovulation •increase ovulation •terminate pregnancy •reduce uterine contractions	Prevent ovulation altrenogest megestrol melegestrol progesterone CIDR Increase ovulation eCG FSH gonadorelin hCG Terminate pregnancy/induce parturition dinoprost cloprostenol oxytocin dexamethasone Reduce uterine contractions epinephrine	VF
Mon Aug 28	Multiple	•inhibit bacterial growth	Antibiotics: LEVEL 1	VF
Mon Aug 28: LAB	*Reproduction*		*Dr Hinrichs*	
Wed Aug 30: 1	Endocrine	**QUIZ 1** •replace T4 •block T4 production •replace insulin	Replace T4 thyroxine Block T4 production methimazole Replace insulin Regular insulin *NPH* *Lente* *PZI* *Glargine* *Detemir*	CP
Wed Aug 30: 2	Endocrine	•replace cortisol activity •replace mineralocorticoid activity •block cortisol productions •destroy capacity to produce cortisol	Replace cortisol activity hydrocortisone prednisone prednisolone methylprednisolone triamcinolone flumethasone betamethasone dexamethasone isoflupredone Replace mineralocorticoid activity DOCP fludricortisone acetate	CP

Day	System	Therapeutic goals	Drugs	
			Block cortisol production trilostane pergolide Destroy capacity to produce cortisol mitotane	
Fri Sept 1	Multiple	•inhibit bacterial growth	Antibiotics: Level 1	VF
Mon Sept 4	Multiple	•inhibit bacterial growth	Antibiotics: Level 2	VF
Mon Sept 4: LAB	*Endocrine*		*Dr Cook*	
Wed Sept 6: 1	GI	**QUIZ 2** •decrease vomiting •increase vomiting •increase gastric pH	Decrease vomiting maropitant metoclopramide ondansetron Increase vomiting apomorphine (xylazine, dexmedetomidine in cat) Decrease stomach acidity famotidine, ranitidine misoprostol omeprazole Cytoprotective agents sucralfate	CP
Wed Sept 6: 2	GI	•increase GI motility •increase appetite •decrease diarrhea	Increase GI motility metoclopramide cisapride erythromycin lidocaine pyridostigmine Increase appetite diazepam mirtazapine capromorelin Decrease diarrhea loperamide N-butylscopolammonium bromide	CP
Fri Sept 8	Multiple	Legal responsibilities		VF
Mon Sept 11	**EXAM 1**			
Mon Sept 11	Multiple	•inhibit bacterial growth	Antibiotics: Level 3	VF
Mon Sept 11: LAB	*GI*		*Dr. Coleman and Dr. Lidbury*	
Wed Sept 13: 1	Immune	**QUIZ 3** •suppress immune response	Glucocorticoids prednisone/prednisolone flumethasone dexamethasone fluticasone betamethasone budesonide triamcinolone Others azathioprine chlorambucil cyclosporine & tacrolimus mycophenolate	CP
Wed Sept 13: 2	Immune	•suppress immune response		CP
Fri Sept 15	Systemic	•inhibit fungal growth	Azoles ketoconazole	CP

Day	System	Therapeutic goals	Drugs	
			fluconazole itraconazole posaconazole voriconazole miconazole amphotericin B flucytosine griseofulvin terbinafine nystatin	
Mon Sept 18	Inflammation	•reduce inflammation •reduce cascade associated with endotoxin •reduce fever	NSAID carprofen deracoxib diclofenac firocoxib flunixin meloxicam phenylbutazone robenicoxib Glucocorticoids grapiprant	CP
Mon Sept 18: LAB	*NO LAB*			
Wed Sept 20: 1	Multiple	**QUIZ 4** •reduce pain	Opioids morphine oxymorphone hydromorphone methadone fentanyl butorphanol buprenorphine tramadol Opiate antagonist naloxone nalbuphine Local anesthetics benzocaine bupivacaine lidocaine mepivicaine proparacaine NSAIDs grapiprant ketamine pregabalin gabapentin	CP
Wed Sept 20: 2	Multiple	•reduce pain		CP
Fri Sept 22	Multiple	•reduce pain and inflammation: comparative	See above	VF
Mon Sept 25	Multiple	•inhibit bacterial growth	Antibiotics: Level 4	VF
Mon Sept 25: LAB	*Inflammation / Pain*		*Dr. Kerwin, Dr. Whitfield*	
Wed Sept 27: 1	Cardiovascular	**QUIZ 5** •promote normal cardiac rhythm	Class IA quinidine procainamide	CP

Day	System	Therapeutic goals	Drugs	
			Class IB lidocaine Class II atenolol carvedilol Class III sotalol amiodarone Class IV Diltiazem	
Wed Sept 27: 2	Cardiovascular	•decrease water retention •decrease sodium retention	Osmotic mannitol Aldosterone antagonists spironolactone Loop diuretic furosemide	CP
Fri Sept 29	Cardiovascular	•increase force of cardiac contractions •increase heart rate	Positive inotropes digoxin Beta adrenergic agonists dopamine dobutamine epinephrine Anti cholinergics atropine glycopyrrolate PDE inhibitor with Ca sensitizing effects pimobendan	CP
Mon Oct 2	**EXAM 2**			
Mon Oct 2	Cardiovascular	•vasoconstrict •vasodilate	ACE inhibitors enalapril benazepril Vasodilator hydralazine Calcium channel blockers diltiazem amlodipine	CP
Mon Oct 2: LAB	Cardiovascular		*Dr Gordon, Dr Navas*	
Wed Oct 4: 1	Multiple	**QUIZ 6** •decrease dehydration/ hypovolemia	Replacement LRS normal saline Normosol-R Plasmalyte A Maintenance Normosol-M 0.45% saline Plasmalyte M Others hypertonic saline Colloids hetastarch	VF
Wed Oct 4: 2	Multiple	•balance acid base		VF

Day	System	Therapeutic goals	Drugs	
Fri Oct 6	Cardiovascular	•interfere with coagulation	Anti coagulant heparins dalteparin enoxaparin Anti thrombotics clopidogrel aspirin	CP
Mon Oct 9	Multiple	•inhibit bacterial growth	Antibiotics: applications	VF
Mon Oct 9: LAB	*Multiple*	*Fluids* *DIFFERENT LOCATION: VICI 320*	*Dr. Gibbons, Dr. Hardy, Dr. Rutter*	
Wed Oct 11: 1	Respiratory	**QUIZ 7** •dilate bronchioles •decrease coughing	Beta 2 selective agonists albuterol terbutaline clenbuterol Methylxanthine derivatives theophylline Anti-tussive hydrocodone Mucolytics N-acetylcycsteine	CP
Wed Oct 11: 2	Urinary	•promote urination •decrease incontinence	Urinary incontinence phenylpropanolamine diethylsilbestrol estriol Urinary retention prazosin phenoxybenzamine acepromazine diazepam methocarbamol bethanechol	CP
Fri Oct 13	Multiple	Legal responsibilities		VF
Mon Oct 16	Multiple	•inhibit protozoal growth	See handout	CP
Mon Oct 16: LAB	*Respiratory*		*Dr. McAtee*	
Wed Oct 18: 1	Skin	**QUIZ 8** •inhibit flea, tick, mite growth	See handout	VF
Wed Oct 18: 2	Skin	•inhibit flea, tick, mite growth	See handout	VF
Fri Oct 20	Multiple	•inhibit helminth growth	See handout	VF
Mon Oct 23	Multiple	•inhibit bacterial growth	Antibiotics: applications	VF
Mon Oct 23: LAB	*Reproduction*		*Dr. Romano*	
Wed Oct 25: 1	CNS	**QUIZ 9** •decrease seizure activity	phenobarbital potassium bromide zonisamide levetiracetam diazepam gabapentin	CP
Wed Oct 25: 2	CNS	•reduce anxiety •reduce inappropriate behavior •improve cognitive function	Tricyclic antidepressants amitriptyline clomipramine SSRI fluoxetine paroxetine Benzodiazepine clorazepate	CP

Day	System	Therapeutic goals	Drugs	
			diazepam Azaperone buspirone MAOI selegeline	
Fri Oct 27	CNS	•sedate •tranquilize •reverse sedation//tranquilization	Alpha 2 adrenergic agonists xylazine detomidine dexmedetomidine romifidine Alpha 2 adrenergic antagonists yohimbine atipamezole tolazoline Phenothiazine acepromazine chlorpromazine Benzodiazepines diazepam midazolam lorazepam Benzodiazepine antagonist flumanezil Opioid reversal naloxone naltrexone	VF
Mon Oct 30	**EXAM 3**			
Mon Oct 30	CNS	•provide general anesthesia	Inhalant isoflurane sevoflurane Injectable alfaxalone etomidate ketamine propofol tiletamine (with zolazepam)	VF
Mon Oct 30: LAB	*CNS*	*Anticonvulsants*	*Dr Boudreau*	
Wed Nov 1: 1	Musculo-skeletal	**QUIZ 10** •paralyze skeletal mm •increase mm relaxation •increase mm mass	Depolarizing NM blocking agent succinylcholine Non depolarizing NM blocking cisatracurium atracurium pancuronium Skeletal muscle relaxants guaifenesin diazepam methocarbamol Anticholinesterase drugs neostigmine edrophonium pyridostigmine Increase muscle mass testosterone trenbolone	VF
Wed Nov 1:2	CNS	•provide anesthetic combinations		CP

Day	System	Therapeutic goals	Drugs	
Fri Nov 3		•prevent itch	Oclacitinib CYTOPOINT ™	CP
Mon Nov 6	Multiple	•inhibit bacterial growth	Antibiotics: applications	VF
Mon Nov 6: LAB	*Multiple*	*Sepsis*	*Dr. Heinz*	
Wed Nov 8: 1	Eyes	**QUIZ 11** •dilate pupils •constrict pupils •reduce aqueous humor •decrease ophthalmic inflammation	Dr. Vallone	
Wed Nov 8: 2	Eyes			
Fri Nov 10	Multiple	Legal responsibilities		VF
Mon Nov 13		Professional Recovery Network	TBA	
Mon Nov 13: LAB	*Skin*	*Ectoparasites*	*Dr. Eckman, Dr. A. Patterson*	
Wed Nov 15: 1	Multiple	**QUIZ 12** •inhibit growth of neoplastic cells	Alkylating cyclophosphamide chlorambucil lomustine Antimetabolites 5-FU cytosine arabinoside methotrexate Anti-tumor antibiotics doxorubicin Anti-tubulin vincristine Platinums cisplatin carboplatin Misc L-asparaginase Receptor tyrosine kinase inhibitors toceranib NSAID piroxicam	CP
Wed Nov 15: 2	Multiple	•inhibit growth of neoplastic cells		CP
Fri Nov 17	Multiple	Drug disposition		VF
Mon Nov 20	Multiple	Drug disposition		VF
Mon Nov 20: LAB	*Olympics*	*DIFFERENT LOCATION: VICI 320*		
Wed Nov 22: 1	*No class*	*Thanksgiving*		
Wed Nov 22: 2	*No class*	*Thanksgiving*		
Fri Nov 24	*No class*	*Thanksgiving*		
Mon Nov 27	Multiple	Drug disposition		VF
Mon Nov 27	*NO LAB*			
Wed Nov 29: 1	Multiple	**QUIZ 13** Pharmacokinetics Exercises		VF
Wed Nov 29: 2		Pharmacokinetics Exercises		VF
Fri Dec 1	Review			
Tues Dec 5	**FINAL**			