

University of Pennsylvania
School of Nursing
Course Syllabus

TITLE: N 747 Evidence Based Practice for Nurse Anesthesia Practice II

COURSE UNITS: 1 cu

CATALOG DESCRIPTION:

Population specific topics of concern to nurse anesthetists are reviewed and discussed. This course examines the evidence-based research to determine whether the procedures and techniques performed by nurse anesthetists are supported by the literature. Student led discussion of a research article related to the topic of discussion will be at the conclusion of each class.

PLACEMENT: Fall, Year II

FACULTY: Marco Gidaro MSN, CRNA

PRE-REQUISITE(S): N 746 Evidence Based Practice for Nurse Anesthesia Practice I, N 681, N 682, N 683, N 580, N 581, N 617, N 6198, N 791, N 792, N 793-Clinical Fieldwork in Nurse Anesthesia Practice I-III

CO-REQUISITE(S): None

COURSE OVERVIEW:

This course continues the evaluation of nurse anesthetist practice by allowing students to review the evidence-based literature to determine how nurse anesthesia practices relate to specific populations and surgical procedures. Seminar discussions will take place on a variety of topics of interest to the practice of nurse anesthesia. The gaps between research and its implementation in practice will be analyzed. These activities are designed to promote the scholarly development of the nurse anesthetist practice.

COURSE OBJECTIVES:

1. Summarize the use of adjuvant therapies in the achievement of an anesthetic state in the pediatric, and geriatric patient.
2. Analyze various methods to assure operating room safety when managing the pediatric and obstetric patients undergoing anesthesia.
3. Explain the anesthesia relevant mechanisms related to the anesthesia machine.
4. Summarize therapies used in obstetric anesthesia.
5. Discuss anesthesia related perioperative peripheral nerve injuries and an associated analysis of anesthesia-related nerve injury claims from the ASA.

6. Explain steps involved in primary hemostasis and review complex disorders of coagulation.
7. Discuss the delivery of inhalational anesthesia to pediatric, obstetric and geriatric patients undergoing systems specific surgeries.
8. The student will identify areas within the scope of nurse anesthesia education in need of review. Once identified, the student will develop a plan of study to review these areas. This study outline will serve as evidence of their reviewing and studying areas of weakness in preparation for the self evaluation examination.
9. Analyze and discuss relevant research articles related to current anesthesia practice.
10. Work effectively in groups promoting positive interdependence, individual accountability and effective group processing.

TEACHING METHODS:

Discussion, Lecture, Student led presentation

EVALUATION METHODS:

Leading of seminar discussion – 25%

Quiz 1 – 12.5%

Quiz 2 – 12.5%

Quiz 3 - 12.5%

Quiz 4 – 12.5%

Evidence of self directed study– 20%

Class Participation – 5%

GRADING POLICY:

A+ 97-100 B+ 87-89 C+ 77-79 F 0-69

A 93-96 B 83-86 C 73-76

A- 90-92 B- 80-82 C- 70-72

Attendance in class is expected and essential for the acquisition of knowledge and integration into the profession of Nurse Anesthesia. Class participation includes attendance. Please be prompt. Unexcused absences and excessive lateness will warrant a reduction in the class participation grade. Therefore, students having 2 or more unexcused absences during the semester will have their grade reduced by one letter grade (i.e. a B+ becomes a C+). Four or greater unexcused absences will result in the final grade being reduced by two letter grades.

A grade ending in 0.6 or above will be rounded up to the next whole number.

The University's Academic Integrity Policy will be enforced during this course. Any student found responsible for cheating during this course will receive a failure for the course.

Guidelines for Student Led Presentations:

- Presentation dates are as outlined in the schedule.
- Four groups
- Each group will present once on one of the specific dates listed above regarding the topic listed.
- 20-30 minute presentations for each presenter.
- Each group will distribute one research article to the faculty member the Sunday prior to the presentation. This article **MUST** be emailed to the instructor the Sunday before the presentation in order to be posted on Blackboard. If the article is not distributed in that matter, a full letter grade will be deducted from the group presentation grade. There will be no exceptions.
- Copies of the power point slides utilized for presentations are to be emailed to the instructor the Sunday before the presentation in order to be posted on Blackboard.
- The discussion will review the evidence-based literature to determine how nurse anesthesia practices relate to specific populations and surgical procedures.
- Seminar discussions will take place on a variety of topics of interest to the practice of nurse anesthesia discussed in the previous classes.
- The gaps between research and its implementation in practice will be analyzed.
- These activities are designed to promote the scholarly development of the nurse anesthesia practice.
- **ONE COPY OF POWER POINT PRESENTATION IS TO BE GIVEN TO INSTRUCTOR THE DAY OF THE PRESENTATION**

REQUIRED TEXTS:

Nagelhout, John & Plaus, Karen. (2013). Nurse Anesthesia 5th Edition. Phila., PA : W.B. Saunders Company.

Morgan, E.D., Mikhail, M.S., Muray, M.J. (2013). Clinical Anesthesiology 5th Edition. New York: Lange Medical Books/McGraw-Hill.

Stoeling, R. & Miller, R. (2006). Basics of Anesthesia 5th Ed. New York: Churchill Livingstone.

Recommended Texts:

Fleisher, L. (2009). Evidenced-Based Practice Anesthesiology. W.B. Saunders Company.

Barash, P.G., Cullen, B.F. & Stoeling, R.K. Eds. (2013). Clinical Anesthesia 7th Edition. Phila., PA: Lippincott, Williams & Wilkins.

WEEKLY TOPICAL OUTLINE:

Day/Time	Topic	Objective	Readings
Week 1 9-02-14	Self Directed review	8	Student Assigned
Week 2 9-09-14	Self Directed Review	8	Student Assigned
Week 3 9-16-14	Self Directed Review	8	Student Assigned
Week 4 9-23-14 Marco Gidaro, CRNA, MSN	Syllabus Overview Class Objectives Group and Topic Selections	10	
Week 5 9-30-14	Guest Lecturer		
Week 6 10-07-14	Geriatrics, Nerve Injuries, Pediatrics, Machine GROUP 1	1,3,5,7,9,10	Related reading(s) and article(s) posted on BB
Week 7 10-14-14	Group 1 Article Evidenced based practice as it relates to anesthesia delivery specific to the endocrine system. GROUP 2 Quiz 1	1, 2,7,9, 10	Related articles and readings on BB
Week 8 10-21-14	Quiz 2 Group 2 article presentation	1,7,9	Related reading(s) and article(s) posted on BB

Week 9 10-28-14	Evidenced based practice as it relates to anesthesia delivery specific to the obstetric patient. GROUP 3	1,2,7,9,10	Related reading(s) and article(s) posted on BB
Week 10 11-04-14	Quiz 3 Group 3 article presentation Evidenced based practice as it relates to anesthesia delivery specific to hemostasis GROUP 4	6, 9, 10	Related reading(s) and article(s) posted on BB
Week 11 11-11-14	Marco Gidaro	lecture	
Week 12 11-18-14	Group 4 article presentation	9	Related reading(s) and article(s) posted on BB

Week 13 11-25-14	Guest lecture		
Week 14 12-2-14	Marco Gidaro	Lecture	
Week 15 12-09-14	Quiz 4		

TOTAL NUMBER OF THEORY HOURS: 45

TOTAL NUMBER OF CLINICAL HOURS: 0

Time Table : Presentation Day

430-5pm Speaker 1

5-515pm Discussion

515-545pm Speaker 2

545-6pm Break

6-630pm Speaker 3

630-7pm Speaker 4

7-730pm Discussion by Facilitator

PRESENTATION GUIDELINES:

Groups will consist of 4 to 5 students, therefore there will be 4 groups of 4-5 students. Each group will have a group leader.

The groups & group leaders are TBD on Class #1.

The group leader will assign content area to the individual students within the context of course objectives, organize the sequencing of the presenters & present one of the five evidenced-based research articles related to content area.

Fleisher, L. Evidenced-Based Practice Anesthesiology textbook must be utilized.

The article and/or corresponding chapter in the Evidenced Based Practice of Anesthesiology textbook by Fleisher and the powerpoint presentation will be emailed to the faculty by the Sunday prior to the presentation for posting to blackboard.

DUE THE DAY OF YOUR PRESENTATION:

- Case Presentation Evaluation Form
- A copy of YOUR portion of the power point presentation or research article if you are presenting the article
- A copy of your bibliography

Presentation dates are: see syllabus

- Four groups
- Each group will present once, members of the group will present material using power point on the date, the last member will present the article also utilizing power point to summarize the article with relative concepts/ideas also presented.
- The material of the presentations has been summarized under the course objectives, students will follow the objectives as a guide for their presentations.
- As a group you should brainstorm about the various issues surrounding your topic of discussion that you believe should be defined and described for the audience; discuss ways the group would like to limit the discussion. (see course objectives)
- The presentation material will be obtained from Morgan and Mikhail or other sources of your choice related to your topic.
- Methods of documentation and evidence of research related to your topic of discussion are required—a minimum of 5 resources - typed in APA format and handed in to the Faculty of note on the day of your presentation will be included by the presenter of the research article.
- 30 minute presentations for each presenter, including the presenter of the article.
- Each group will e-mail the Faculty of note one research article presentation related to the topic of discussion 3 days prior to the presentation (the Sunday prior to your presentation). This article **MUST** be emailed and will be posted on blackboard. If the article is not distributed in that manner, a full letter grade will be deducted from the group presentation grade. There will be no exceptions.
- Power Point/Google Docs must be utilized for the presentations. (Or Keynote) This presentation must be e-mailed to the Faculty of note at a minimum of 3 days prior the presentation (the Sunday prior to your presentation). This power point **MUST** be emailed and will be posted on blackboard by the instructor.. If the PowerPoint is not distributed in the above mentioned manner, a full letter grade will be deducted from the group presentation grade. There will be no exceptions.
- Hard copy handouts will NOT be distributed to the class as all material will be on blackboard.
- The discussion will review the evidence-based literature to determine how nurse anesthesia practices relate to specific populations and surgical procedures.
- Seminar discussions moderated by the instructor will take place on a variety of topics of interest to the practice of nurse anesthesia discussed in the previous classes.
- The gaps between research and its implementation in practice will be analyzed.
- These activities are designed to promote the scholarly development of nurse anesthesia practice.

- Leading of your portion of the seminar discussion is **25%** of your N 747 grade. The case presentation evaluation form is to be given to instructor the day of your presentation as well.

Organizational Structure Guidelines for Seminar Discussion Oral Presentation-25%

The focus for your oral presentation is clear, understandable presentation; well-organized, well-planned, well-timed discussion. The discussion should be presented in a calm, organized, well-planned manner.

When you give your oral presentation, we'll all be listening for the same things. Use the following as a requirements list, as a way of focusing your preparations:

- Plan to explain to the class what the topic(s) of your oral presentation is. Make sure that there is a clean break between this brief explanation and the beginning of your actual oral presentation.
- Make sure your oral presentation lasts no longer than 30 minutes. A student representative will signal to indicate a 3-minute warning and again a 1-minute warning, when 30-minutes have arrived, or have past.
- Pay special attention to the introduction to your talk. Indicate the purpose of your oral presentation, give an overview of its contents, and find some way to interest the audience. (See the example text of an introduction to an oral report in "B"). Use at least one visual- power point presentation required..Flip charts and objects for display are okay. But please avoid writing a lot on the chalkboard or relying strictly on handouts.
- Make sure you discuss key elements of your visuals. You may NOT read from your powerpoint. Point out things about them; explain them to the audience.
- Make sure that you're speaking style and gestures are acceptable. Ensure that you are loud enough so that everybody can hear, that you don't speak too rapidly (nerves often cause that), and that your gestures and posture are acceptable. For example, don't slouch on the podium or against the wall, and avoid fidgeting with your hands, do not chew gum. As for speaking style, consider slowing your tempo a bit--a common tendency is to get nervous and talk too fast. Also, be aware of how much you say things like "uh," "you know," and "okay."
- Plan to explain any technical aspect of your topic very clearly and understandably. Don't race through complex, technical information--slow down and explain it carefully so that we understand it.
- Use "verbal headings"--by now, you've gotten used to using headings in your written work. There is a corollary in oral presentations. With these, you give your audience a very clear signal you are moving from one topic or part of your talk to the next. (Examples of verbal headings are shown in "C".)
- Plan your presentation in advance and practice it so that it is *organized*. Make sure that listeners know what you are talking about and why, which part of the talk you are in, and what's coming next. Overviews and verbal headings greatly contribute to this sense of organization.
- End with a real conclusion. People sometimes forget to plan how to end an oral presentation and end by just trailing off into a mumble. Remember that in conclusions, you can *summarize* (go back over high points of what you've discussed), *conclude* (state some logical conclusion based on what you have presented), provide some *last thought* (end with some final interesting point but general enough not to require elaboration), or some combination of these three. And certainly, you'll want to prompt the audience for questions and concerns--last 5 minutes of presentation.

- As mentioned above, be sure your oral presentation is carefully timed to 30 minutes. Some ideas on how to do this are presented in the next section.

Diagram of the oral presentation.

A. Preparing for the Oral Report

Pick the method of preparing for the talk that best suits your comfort level with public speaking and with your topic. However, do some sort of preparation or rehearsal--some people assume that they can just jump up there and ad lib for 30 minutes and be relaxed, informal. It doesn't often work that way--drawing a mental blank is the more common experience. **Note:** The presentation is 15% of your grade...

Here are the obvious possibilities for preparation and delivery:

- Write a script, practice it, and keep it around for quick-reference during your talk.
- Set up an outline of your talk, practice with it, and bring it for reference.
- Set up cue cards, practice with them, and use them during your talk.
- Write a script and read from it.

Of course, the extemporaneous or impromptu methods are also out there for the brave and the adventurous. However, please bear in mind that 16 people will be listening to you--you owe them a good presentation, one that is clear, understandable, well-planned, organized, and informative.

It doesn't matter which method you use to prepare for the talk. Of course the head-down style of reading your report directly from a script has its problems and points will be deducted accordingly. This delivery tends toward a dull monotone that either puts listeners off or is hard to understand.

For some reason, people tend to get nervous in this situation. Try to remember that your classmates and instructor are a very forgiving, supportive group. You don't have to be a slick entertainer--just be clear, organized, understandable, and informative. The nerves will wear off someday, the more oral presenting you do.

Introductory remarks in an oral presentation.

B. Delivering an Oral Presentation

When you give an oral presentation, focus on common problem areas such as these:

- *Timing*--Make sure you keep within the 30-minute time limit. Do some rehearsal, write a script, or find some other way to get the timing just right.
- *Volume*--Obviously, you must be sure to speak loud enough so that all of your audience can hear you. You might find some way to practice speaking a little louder in the days before the oral presentation.
- *Pacing, speed*--Sometimes, oral presentators who are a bit nervous talk too fast. All that adrenaline causes them to speed through their talk. That makes it hard for the audience to follow.

In general, it helps listeners to understand you better if you speak a bit more slowly and deliberately than you do in normal conversation. Slow down, take it easy, and be clear.

- *Gestures and posture*--Watch out for nervous hands flying all over the place. This too can be distracting--and a bit comical. At the same time, don't turn yourself into a manikin. Plan to keep your hands clasped together or holding onto the podium and only occasionally making some gesture. As for posture, avoid slouching at the podium and leaning against the wall.
- *Verbal crutches*--Watch out for too much "uh," "you know," "okay" and other kinds of nervous verbal habits. Instead of saying "uh" or "you know" every three seconds, just don't say anything at all. In the days before your oral presentation, practice speaking without these verbal crutches. The silence that replaces them is not a bad thing--it gives listener's time to process what you are saying.

Examples of verbal headings in an oral presentation.

C. Planning and Preparing Visuals for Oral Presentations

Prepare at least one visual for this presentation--power point required.
Here are some ideas for the "medium" to use for your visuals:

- *Power Point Presentations*—See attached “Effective Presentations” for clear directions related to effective slides, graphics, diagrams, tables & arrangement
- The power point MUST be provided to the faculty by the Sunday prior to your presentation. You must bring copies yourself.
- DUE THE DAY OF YOUR PRESENTATION:
 - Case Presentation Evaluation Form
 - A copy of YOUR portion of the power point presentation or research article if you are presenting the article
 - A copy of your bibliography
- *Transparencies for overhead projector*--Design your visual on a sheet of blank paper, then photocopy it, and then get a transparency of it. You may not have access to equipment like this; most copy shops can make transparencies for you; and your instructor will make transparencies for you, given a few days lead-time.
- *Poster board-size charts*--Another possibility is to get some poster board and draw and letter what you want your audience to see. If you have a choice, consider transparencies--it's hard to make charts look neat and professional.
- *Handouts*--You can run off copies of what you want your listeners to see and hand them out before or during your talk. This option is even less effective than the first two because you can't point to what you want your listeners to see and because handouts take listeners' attention away from you. Still, for certain visual needs, handouts are the only choice.
- *Objects*--If you need to demonstrate certain procedures, you may need to bring in actual physical objects. Rehearse what you are going to do with these objects; sometimes they can take up a lot more time than you expect.
- Take some time to make your visuals look sharp and professional--use a straightedge, good dark markers, neat lettering or typing. Do your best to ensure that they are legible to the entire audience.

As for the content of your visuals consider these ideas:

- *Drawing or diagram of key objects*--If you describe or refer to any objects during your talk, try to get visuals of them so that you can point to different components or features.
- *Tables, charts, graphs*--If you discuss statistical data, present it in some form or table, chart, or graph. Many members of your audience may have trouble "hearing" such data as opposed to seeing it.
- *Outline of your talk, report, or both*--If you are at a loss for visuals to use in your oral presentation, or if your presentation is complex, have an outline of it that you can show at various points during your talk.
- *Key terms and definitions*--A good idea for visuals (especially when you can't think of any others) is to set up a two-column list of key terms you use during your oral presentation with their definitions in the second column.
- *Key concepts or points*--Similarly, you can list your key points and show them in visuals. (Outlines, key terms, and main points are all good, legitimate ways of incorporating visuals into oral presentations when you can't think of any others.)

During your actual oral presentation, make sure to discuss your visuals, refer to them, and guide your listeners through the key points in your visuals. It's a big problem just to throw a visual up on the screen and never even refer to it.

CASE PRESENTATION EVALUATION FORM

Student: _____

Each category below is evaluated on a scale of 1-5, based on the criteria below. These are meant to understand the overall evaluation of the work in each category.

- 5 = **Excellent**. Greatly exceeds requirements. Shows outstanding levels of creativity, skill, initiative, and/or effort
4 = **Good**. Exceeds requirements. Shows substantial creativity, skills, initiative, and/or effort
3 = **Average**. Meets the requirements in every aspect, but does not exceed requirements
2 = **Below Average**. Meets some requirements, but deficient in others
1 = **Poor**. Deficient in most or all requirements

Group Components

- _____ Quality of Introduction, Transitions and Conclusion
_____ Explanation of Key Concepts and Problems
_____ Comprehensiveness of Solutions and Criteria for Addressing Problem
_____ Group Met Requirements of Assignment

Individual Components

- _____ Documentation of Outside Evidence
_____ Balance between Evidence and Personal Explanation
_____ Comprehensiveness of Material and Statements
_____ Eye Contact with Audience and Group Members
_____ Asked Questions, Answered Questions
_____ Ability to Expand Past Outside Evidence
_____ Expansion and Development of Ideas
_____ Transitions and Setup of Material
_____ Overall Contribution to Group Discussion

Individual Reference Page

- _____ Objectives met
_____ Current and Comprehensive-minimum of 5 resources

_____ Average (total)



/100 points (Grade Total = Average X 20)

GUIDELINES FOR SELF DIRECTED STUDY GUIDE

The student will identify gaps within their anesthesia related knowledge base. A self directed plan of study will be developed to explore anesthesia resources to improve the student's understanding of self identified areas of weakness. A sample Self Directed Review is included for reference below. The plan of study should include:

A time schedule of material to be covered on each Self Directed Review Session. This outline should reflect a minimum of 7.5 hours of study per week: Three 3 hour sessions with two 15 minute breaks per session **OR** 22.5 hours total for the 3 weeks of class time.

The study guide must include:

For individuals who have not passed the SEE prior to 9/3/2013 or who are scheduled to take the SEE after 9/3/2013 but before 9/17/2013: A summary of the preparation done *prior* to self directed review days, with the understanding that you will likely exceed 22.5 hours of study time in preparation for the SEE. This will enable faculty to review your 3 week plan to determine what you material you have already reviewed and what material you will be focusing on during the beginning of the semester.

For individuals who pass the SEE prior to 9/3/2013: A copy of the SEE exam results. The areas identified for study in the Self Directed Review should correlate with the areas identified on the SEE exam results as areas of relative weakness.

The study guide must include a time break down, including breaks. For each allotted time slot a category and detailed content outline must be provided.

The method of evaluation of each review session, e.g. review questions from a specific source, must be included to assess your knowledge related to the content area that you have identified. It is the student's responsibility to maintain a record of these evaluations. Faculty may ask to review these evaluations with the student.

Include a reference text and page for each session and topic. References must include anesthesia textbooks (e.g. Nagelhout & Plaus). Additional non-textbook references (e.g. Valley review/Prodigy) may be used as supplemental materials.

This study plan should be submitted electronically to wiltse@nursing.upenn.edu no later than 9:00AM EST on September 3, 2013. Failure to meet the assigned due date and time will result in a full letter grade deduction for each 24 hours that the Self Directed Review Plan is late. For example, a plan that was submitted on time that would have received a 95% would be scored as an 85% if submitted on September 3, 2013 at 9:01am EST and as a 75% if submitted on September 4, 2013 at 9:01am.

Faculty will expeditiously review each plan to determine that the guidelines are met as per the instructions listed above. Individuals with reviews that are considered suboptimal will be notified by faculty by September 10, 2013. After discussion and direction by a faculty member the student may be required to revise their study plan. However, students are strongly encouraged to do due diligence in submitting their Self Directed Review Plan as any required revisions will not lead to an increase in the grade. Grades will be based solely on the quality of the product submitted for the 9/3/2013 due date.

This self directed review is a requirement for N620, N747 and N794. The percentage grade awarded for this assignment will be sent to each course director for each of these courses, as per the requirements.

If any further examples or explanation of the Self Directed Review is needed, please email wiltse@nursing.upenn.edu for clarification.

SAMPLE SELF DIRECTED REVIEW PLAN

Self-Directed Study Guide

CONTENT COVERED PRIOR TO STUDY DAYS

Equipment (M&M 17-90)

- ✓ Anesthesia gas machine
- ✓ Compressed gas cylinders
- ✓ Breathing systems
- ✓ Laryngeal mask airway
- ✓ Quick Quiz: Equipment and Monitoring, Valley
- ✓ *Gas Sources, Memory Master*
- ✓ *Regulators & Flowmeters, Memory Master*
- ✓ *Vaporizers, Memory Master*
- ✓ *Alarms & Safety Devices, Memory Master*
- ✓ *Ventilators, Memory Master*
- ✓ *CO₂ Absorbers, Memory Master*
- ✓ *Anesthetic Circuits, Memory Master*
- ✓ *Machines, Memory Master*
- ✓ *Airway Equipment, Memory Master*
- ✓ *Airway Devices, Prodigy Quick Review*
- ✓ *Anesthetic Delivery System, Prodigy Quick Review*

Pre-anesthesia Evaluation

- ✓ Preoperative Evaluation and Preparation of the Patient (Nagelhout, p 358-398)
- ✓ *Preoperative Assessment, Memory Master*

Hepatic Physiology and Anesthesia

- ✓ Functional Anatomy of the Liver (M&M p. 773-775)
- ✓ Vascular Functions of the Liver (M&M p. 775-780)
- ✓ Effect of Anesthesia on Hepatic Function (M&M p. 781-788)
- ✓ *Hepatic Anatomy & Physiology, Memory Master*
- ✓ *Hepatic Pathophysiology, Memory Master*
- ✓ *Hepatic Failure, Prodigy*
- ✓ *Hepatitis, Prodigy*

Hemostasis and Immunology

- ✓ Formation of the platelet plug (Valley p. 172-181)
- ✓ Fibrin production, Disorders (Valley p. 177, 181)
- ✓ Coagulation Cascade (Valley p. 179-180)
- ✓ Physiology & Pharmacology of Anticoagulation (Valley p. 182-183)
- ✓ Fibrinolysis (Valley 184-185)
- ✓ Complex Disorders of Coagulation (Valley p. 186)
- ✓ Fluid and Blood Products
- ✓ Immune Function (Rhoades & Bell, p 187-206, notes from 607 and 683)
- ✓ *Hemostasis Quiz, Valley p. 190-191*
- ✓ *Blood Components, Memory Master*
- ✓ *Coagulation, Memory Master*
- ✓ *Anemias, Memory Master*
- ✓ *Coagulopathies, Memory Master*
- ✓ *Coagulation Tests*

Professional Issues

- ✓ History (Nagelhout, p 1-4)
- ✓ Organizational and Professional Survival (Nagelhout, p 5-23)
- ✓ Standards of Practice (Nagelhout, p 28-32)
- ✓ *Professional Practice Standards, Memory Master*

Medical/Legal Issues

- ✓ Sources of Law (Nagelhout, p. 40-42)
- ✓ Areas of Interest to Nurse Anesthetist (Nagelhout, p. 43-46)
- ✓ Avoiding a Lawsuit (Nagelhout, p. 46-48)
- ✓ *Legal, Memory Master*
- ✓ *Patient Safety, Memory Master*
- ✓ *Legal Issues, Prodigy Quick Review*

Research

- ✓ Fundamentals (Nagelhout p. 49, 66)
- ✓ EBP (Nagelhout p. 63-66)
- ✓ Process stages (Nagelhout p. 50-62)
- ✓ Reliability, validity (Nagelhout p. 49-50)
- ✓ Research terminology, Prodigy
- ✓ *Research Methods and Quality, Memory Master*

Pediatric Anesthesia

- ✓ Pediatric anatomical differences (Valley p. 453-58 & M&M p. 923-931)
- ✓ Pediatric Anomalies (Valley p. 458-66 & M&M p. 939-944)
- ✓ Congenital Anomalies
- ✓ Malignant Hyperthermia
- ✓ Airway Difficulties
- ✓ Neonate
- ✓ *Pediatric Anesthesia Review, Valley p. 472-75*
- ✓ *Pediatric Anatomy & Physiology, Memory Master*
- ✓ *Congenital Problems & Management, Memory Master*
- ✓ *Pediatric Pathophysiology, Memory Master*
- ✓ *Pediatric Pharmacology, Memory Master*
- ✓ *Prematurity, Prodigy Quick Review*
- ✓ *Pediatric Anatomy & Physiology, Prodigy Quick Review*
- ✓ *Pediatric Pharmacology, Prodigy Quick Review*

Obstetrical Anesthesia (M&M 890-922, Nagelhout 1103-1147, Valley p. 404-435)

- ✓ Physiological changes of Pregnancy
- ✓ General and Regional Anesthesia
- ✓ Stages of Labor and Pain Pathways
- ✓ Anesthesia for the Complicated Pregnancy
- ✓ *Obstetrical Anesthesia Quiz, Valley p 436-437*
- ✓ *OB Anatomy & Physiology, Memory Master*
- ✓ *PIH, Memory Master*
- ✓ *OB Complications, Memory Master*

Geriatric Anesthesia (M&M p. 951-958, Nagelhout p 1210-1217, Valley p. 461-474)

- ✓ General Physiological and Cellular Changes
- ✓ Pharmacology in the Geriatric Patient
- ✓ *Geriatrics Quiz, Valley 476*
- ✓ *Geriatric A&P, Memory Master*
- ✓ *Geriatric Pharmacology, Memory Master*

Anesthesia and Obesity (Nagelhout p. 1024-1044, Valley p. 478-493)

- ✓ Physiology of Obesity
- ✓ Medical Consequences of Obesity
- ✓ Organ System Pathophysiology
- ✓ Anesthetic Management
- ✓ *Obesity Anatomy and Physiology, Memory Master*
- ✓ *Obesity Pharmacology, Memory Master*
- ✓ *Obesity Anesthetic Management, Memory Master*
- ✓ *Obesity Complications, Memory Master*
- ✓ *Obesity, Prodigy Quick Review*

Cell Physiology

- ✓ Valley (p. 1-6,)
- ✓ Rhoades & Bell (p. 20-38)
- ✓ *Cell Physiology Review Questions, Valley p. 10-11,*

Cardiac Physiology

- ✓ Cardiac Electrophysiology (Valley p. 110-111 & M&M p. 413-416)
- ✓ Ionic Changes with Ventricular Contraction (Valley p. 111 & M&M p. 418-420)
- ✓ ECG interpretation (Valley, p. 116-122)
- ✓ *Cardiac Electrophysiology, Memory Master*
- ✓ Determinants of Cardiac Output (Valley p. 129-130 & M&M p 420-425)
- ✓ Ventricular Hypertrophy (Valley p. 130 & M&M p. 435)
- ✓ Anatomy and Physiology of Coronary Circulation (M&M, p 430- 432)
- ✓ *Heart Sounds and Murmurs, Memory Master*
- ✓ *Cardiac Output & Cardiac Cycle, Memory Master*
- ✓ *Blood Pressure, Memory Master*
- ✓ *Circulation, Memory Master*

Cardiac Pressure Volume Loops (Nagelhout, p.478-479, 492-499)

- ✓ Normal LV loops (Valley p. 130)
- ✓ Preload changes and Pressure Volume Loop (Valley p. 131-133 & M&M p. 434)
- ✓ Afterload changes and Pressure Volume Loops (Valley p 134-136 & M&M p. 434)
- ✓ Altered Contractility on Pressure Volume Loops (Valley p. 137-139)
- ✓ Pressure-Volume Loop Shifts Associated with Valve Problems (Valley p. 141-143)
- ✓ Ventricular Function Curves (Valley p 145-146)
- ✓ *Valley Exercise on Pressure Volume Loops, Valley p. 144*
- ✓ *Valley Exercise on Ventricular Function Curves, Valley p. 148*
- ✓ *Quick Quiz: Cardiovascular*
- ✓ *Myocardial Blood Flow & Oxygen Consumption, Memory Master*

Miscellaneous Cardiac Topics

- ✓ Treatment of Intraoperative Ischemia (Valley p 149-150, M&M p. 453-463)
- ✓ Control of BP (Baroreceptor Reflex) (Valley p. 151)
- ✓ Nitric Oxide (Valley p. 152-154, M&M 256-259)
- ✓ Determinants of Myocardial O₂ supply (Valley p. 155)
- ✓ Nonadrenergic CV drugs (Valley, p 156)
- ✓ Antihypertensives (Valley p 156, M&M p. 255-262)

Valvular Heart Disease

- ✓ IHSS, Valley (p. 160-161, M&M p. 475)
- ✓ Aortic Regurgitation (Valley p. 162-163, M&M p. 476-477)
- ✓ Mitral Regurgitation (Valley p. 164-165, M&M 469-472)
- ✓ Aortic Stenosis (Valley, p 166-167, M&M 473-474)
- ✓ Mitral Stenosis (Valley p 168-169, M&M p. 467-469)
- ✓ *Valley Quick Quiz: Valvular Lesions*
- ✓ *Arrhythmias, Hypertrophy, Valve Lesions, Memory Master*

- ✓ *CAD, Cardiac Failure, Tamponade, Memory Master*

Pain Pathways and Modulation of Pain

- Pain Pathways and Opioids (Valley p. 77-85 & Nagelhout p. 603-604)
- Substantia Gelatinosa, (Valley p. 81)
- Modulation of Pain (Valley p. 88)
- Afferent and efferent pain pathway quick review (Valley p 89)

NMB

- ✓ NMB Pharmacology (Valley p. 14-19 & M&M p. 208-209)
- ✓ Peripheral Nerve Stimulation (Valley p. 25-28 & M&M 209-210)
- ✓ NMB Reversal (M&M p. 227-241)
- ✓ *NMB Review Questions, Valley p. 29-32*
- ✓ *Succinylcholine Review Questions, Memory Master p. 184-185*
- ✓ *Non-Depolarizer Review Questions, Memory Master p. 186-190*
- ✓ *Interaction & Complication Review Questions, Memory Master p. 190-194*
- ✓ *Peripheral Nerve Stimulator Questions, Memory Master p. 304-306*
- ✓ *Antimuscarinics, Memory Master p. 194-196*
- ✓ *Atypical Plasma Cholinesterase, Memory Master*
- ✓ *Reversal Agents, Memory Master*

Med Review

- ✓ Drugs Acting on the SNS (Valley p. 42-43)
- ✓ Alpha & Beta Adrenergic Antagonists (M&M p 242-253)
- ✓ Pharmacology of PNS (Valley p. 54-58)
- ✓ Pharmacology of Bronchial Smooth Muscle (Valley p. 59-62)

Monitoring (Nagelhout, p. 315-331, 337-342)

- ✓ Pulse Oximetry (Valley p. 518)
- ✓ Capnography (Valley p. 519-23)
- ✓ BIS (Valley p. 518)
- ✓ CVP (Valley p. 524)
- ✓ PAC (Valley p. 526-29)
- ✓ A-line (Valley p. 530-31)
- ✓ Quiz equipment and monitoring (Valley p. 532-35)
- ✓ *CVP Questions, Memory Master*
- ✓ *Pulmonary Artery Pressure Questions, Memory Master*
- ✓ *Arterial Blood Pressure Questions, Memory Master,*
- ✓ *Capnography Questions, Memory Master*
- ✓ *Pulse-Ox Questions, Memory Master*

Endocrine

- ✓ Pancreas (M&M. p. 803-806)
- ✓ Thyroid (M&M. p. 806-808)
- ✓ Parathyroid (M&M p. 809-811)
- ✓ Adrenal Gland (M&M p. 811-813)
- ✓ Pituitary (M&M p 814)
- ✓ *Thyroid & Parathyroid, Memory Master*
- ✓ *Thyroid & Parathyroid Pathophysiology, Memory Master*
- ✓ *Pancreas, Memory Master*
- ✓ *Pancreas Pathophysiology, Memory Master*
- ✓ *Adrenal Gland, Memory Master*
- ✓ *Adrenal Pathophysiology, Memory Master*
- ✓ *Pituitary, Memory Master*

Clinical Scenarios

- Cardiac Surgery (M&M p. 490-520)

- Mediastinoscopy (Valley p. 538)
 - Pheochromocytoma (Valley p. 539, Hines & Marschall, p. 388-393)
 - One Lung Ventilation (Valley p. 540)
 - ASA Physical Status Classification (Valley p. 541)
 - Neuromuscular Diseases (Valley p. 542-543, Hines & Marschall p. 446-466)
 - Parkinson's Disease (Valley p. 544, Hines & Marschall p. 227-228 & 642-643)
 - Rheumatoid Arthritis (Valley p. 545, Hines & Marschall p. 455-457)
 - Osteoarthritis (Valley p. 545, Hines & Marschall p. 458-459)
 - Scoliosis (Valley p. 546, Hines & Marschall p. 459-460)
- Carcinoid Syndrome (Hines & Marschall p. 289-291)

Additional Review: In addition to utilizing Valley review book (sweat book), Valley memory master, and Nagelhout Review of Nurse Anesthesia, a minimum of 30 minutes a session will be devoted to Prodigy software questions.

DAY 1

0900-1030: Neuroanatomy/Neurophysiology

- Neuromuscular Physiology/Pharmacology (Valley, p 12-28, Nagelhout, p 179-199)
- Peripheral Nervous System (Valley, p 31-54, Nagelhout, p 656-658)
 - Sympathetic Nervous System
 - Parasympathetic Nervous System
- *Neuropathophysiology and Autonomic Nervous System Review Questions, Memory Master*

1030-1045: break

1045-1200: Neuroanatomy/Neurophysiology (cont.)

- Central Nervous System (Valley, p 90-103, Nagelhout, p 651-690, M&M, p 614-626)
 - Neuroanatomy of spine and spinal cord
 - Cranial nerves
 - Cerebral blood flow and metabolism
 - Spinal cord blood flow
- *Spinal Cord, Cranial Nerves, Spinal Cord, Cerebral Blood Flow Review Questions, Memory Master*

1200-1245: Lunch Break

1245-1415: Larynx Anatomy, O₂ and CO₂ Dissociation Curves

- Anatomy of the Larynx (Valley p. 192-193, M&M p. 91-93, Nagelhout p. 560-563)
- Oxyhemoglobin Dissociation Curve (Valley p. 194-197, M&M p. 561- 564, Nagelhout p. 573-575)
- Carbon Dioxide Blood Dissociation Curve (Valley p. 200 & M&M p. 564-567)
- *Respiratory Anatomy Review Questions, Memory Master*

1415-1430: break

1430-1600: Ventilation Control, Pulmonary Mechanics and V/Q Relationship

- Control of Ventilation (Valley p. 203 & M&M p. 567-568)
- Pulmonary Mechanics (Valley p. 204, M&M p. 539-542, Nagelhout p. 565-570)
- V/Q Relationship (Valley p. 210 & M&M p. 552-556, Nagelhout p. 572)
- V/Q Review Questions (Valley p. 211)
- *Respiratory Mechanics Review Questions, Memory Master*
- *Ventilation Review Questions, Memory Master*

1600-1615: break

1615-1745: Lung Zones, Pre-O₂, PFTs, Obstructive and Restrictive Dx

- Zones of the Lung (Valley p. 217 & M&M p. 554-555, Nagelhout p.570-571)
- Preoxygenation (Valley p. 219)
- Pulmonary Function Tests (Valley p. 221 & M&M p. 544-551)
- Obstructive and Restrictive Disease (Valley p. 223)
- Airway Closure, Closing Volumes/Capacities (Valley p. 224-228)

- *Respiratory Quiz, Valley p. 231-234*

1745-1800: break

1800-1930: Review of Day

- Memory Master Sections:
 - *Blood Flow, HPV/Shunts Review*
 - *Blood Gases (O₂ and CO₂) Review*
 - *Respiratory Control Review*
 - *Ventilation:Perfusion Review*
 - *Obstructive & Restrictive Diseases Review*
- Prodigy
- Nagelhout Review of Nurse Anesthesia

Total Study Time for Day 1 = 8.75 hours

Areas not covered adequately will continue to be reviewed during this week.

DAY 2

0900-1000: Renal Function, Regulation of Fluid (Naghelout, p 694-714)

- Overview of Renal Function (Valley p. 235-239 & M&M p. 725-732)
- Renal Control of Glucose (Valley p.241)
- Regulation of Extracellular Fluid Osmolality (Valley p.242-245)
- Control of Extracellular Fluid Volume (Valley p. 246)
- *Renal Anatomy and Physiology Review Questions, Memory Master*
- *Renal Pathophysiology Questions, Memory Master*

1000-1015: break

1015-1115: Renal Electrolyte Control, Diuretics, Renal Failure

- Renal Control of Electrolytes (Valley p. 246-251)
- Diuretics (Valley p. 253-255 & M&M p. 736-739)
- Renal Failure, (Valley p. 256-257 & M&M p. 746-756)
- *Acute and Chronic Renal Failure, Memory Master*
- *Renal Function Tests, Memory Master*
- *Diuretics, Memory Master*

1115-1145: lunch break

1145-1245: Fluid and Electrolytes & Acid/Base Balance

- Fluid and Electrolyte Balances/Disturbances (Valley p. 260-263, M&M 246-251)
- Kidneys' Role in Acid/Base Balance (Valley p. 265-268)
- *Renal, Electrolytes, Acid-Base Issues, Quiz, Valley p. 271-273*
- *Acid Base, Memory Master*
- *Fluids and Electrolytes, Memory Master*

1245-1300: break

1300-1430: Local Anesthetics

- Structure (Valley p 291-293, M&M 263-275)
- Mechanism of action, (Valley p 294, M&M 267-275)
- Metabolism (Valley p 295, M&M 263-275)
- Toxicity (Valley p 295)
- *Pharmacology Quiz, Valley p 298*

1430-1600: Regional Anesthesia

- Spinal Anesthesia (Valley p 357-366, M&M 289-309)
- Epidural Anesthesia (Valley p 367-372, M&M 310-314)
- Complications of Neuraxial Blockade (Valley p 373, M&M 316-323)
- Upper Extremity Blocks (Valley p 374-379, M&M 324-342)
- Lower Extremity Blocks (Valley p 381-395, M&M 343-357)

1600-1630: break

1630-1730: Positioning and Nerve Injuries

- Positioning (Valley p 402)
- *Peripheral Nerve Injuries Quiz, Valley p 403*
- Nerve Injuries (Valley p 396-400)

1730-1930: Review of Day

- Memory Master Sections:
 - *Esters*
 - *Amides*
 - *Infiltration and Topical*
 - *Subarachnoid*
 - *Brachial Plexus Blocks*
 - *Lower Extremity*
 - *Other Regional Blocks*
 - *Regional Anesthesia Complications*
 - *Positioning*
 - *Peripheral Nerve Injury*
- Prodigy
- Nagelhout Review of Nurse Anesthesia

Total Study Time for Day 2 = 9.0 hours

Areas not covered adequately will continue to be reviewed during this week.

Day 3**0900-1045: Chemistry/Physics**

- Vapor Pressures (Valley p. 317-319, Nagelhout p. 244-251)
- Pressure and Tension (Valley p. 319-321, Nagelhout p. 244-251)
- Fluid dynamics (Valley p. 321-323, Nagelhout p 244-251)

1045-1100: break**1100-1215: Chemistry/Physics (cont)**

- Solubility of Gases (Valley p. 324, Nagelhout p. 244-251)
- Gas Laws (Valley p. 324-325, Nagelhout p 244-251)
- Math for Calculating Concentrations (Valley p 335)
- *Physics/Chemistry Quiz Valley p. 343-355*

1215-1300: Lunch**1300-1400: Pharmacokinetics** (Naghelout 77-92)

- Volume of Distribution (Valley p 276-278)
- Kinetics (Valley p. 279-283)
- Hepatic Metabolism (Valley p. 284)

1400-1445: Weak Acids and Weak Bases (Naghelout 77-92)

- Weak Acids (Valley p. 285-286)
- Weak Bases (Valley p. 287-289)
- Identifying Weak Acids and Weak Bases (Valley p 290)

1445-1500: break**1500-1630: Inhalational Agents** (Naghelout 99-112, M&M 155-178)

- Pharmacodynamics/Pharmacokinetics (Valley p. 301-302)
- Concentration and Second Gas Effects (Valley p. 307-312)
- N2O pharmacology review (M&M p.164-166 & Valley p. 330-331)
- *N2O Review Questions, Memory Master*
- *Volatile Agent Review Questions, Memory Master*
- *Uptake Curve Review, Valley p. 332-333*

1630-1700: break**1700-1745: IV Anesthetics**

- Intravenous Anesthetics (Valley p. 314-316 & M&M p. 180-203)
- *Barbiturate Review, Memory Master*
- *Opioid Review, Memory Master*

- *Benzodiazepine Review, Memory Master*
- *Ketamine, Etomidate, & Propofol Review, Memory Master*

1745-1930: Review of Day

- ✓ Memory Master
 - *Chemistry & Basics, Chemistry*
 - *Gas and Gas Laws*
 - *Fluid Flow*
 - *Pharmacodynamics*
 - *Pharmacokinetics*
 - *Pka and Ionization*
 - *Metabolism & Toxicity*
- ✓ Nagelhout Review of Nurse Anesthesia

Total Study Time for Day 3 = 8.75 hours

Areas not covered adequately will continue to be reviewed during this week.

References:

Hines, R.L. & Marschall, K.E. (2008). *Stoelting's Anesthesia and Co-Existing Disease* (5th ed). Philadelphia: Churchill Livingstone

Memory Master: Questions & Answers for the Student Registered Nurse Anesthetist (2012). Valley Anesthesia.

Morgan, G. E., Mikhail, M. S. & Murray, M. J. (2006). *Clinical Anesthesiology* (4th ed). New York: McGraw-Hill.

Naghelout, J.J. (1999). *Review of Nurse Anesthesia*. Philadelphia: Saunders.

Naghelout, J. J. & Plaus, K. L. (2010). *Nurse Anesthesia* (4th ed). St. Louis: Elsevier Saunders

Rhoades, R.A. & Bell, D.R. (2009). *Medical Physiology: Principles for Clinical Medicine* (3rd edition). Philadelphia: Lippincott Williams & Wilkins.

Sauvage, T.R. & Schaus, S.S. (2012). *A Comprehensive Certifying Examination Review and Update Course*. Valley Anesthesia Educational Programs.

