

University of Pennsylvania  
School of Nursing  
Course Syllabus

**TITLE: N 746 Evidence Based Practice for Nurse Anesthesia Practice I**

**COURSE UNITS: 1 cu**

**CATALOG DESCRIPTION:**

This course examines the evidence-based research to determine whether the procedures and techniques performed by nurse anesthetists are supported by the literature. Population specific topics of concern to nurse anesthetists are discussed. Student led seminars will guide the classroom discussions.

**PLACEMENT: Spring, Year II**

**FACULTY: Marco Gidaro CRNA, MSN**

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**PRE-REQUISITE(S): N 681, N 682, N 683, N 580, N 581, N 617, N 6198, N 791, N 792-Clinical Fieldwork in Nurse Anesthesia Practice II**

**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. Students will lead seminar discussions 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 nurse anesthesia practice.

**COURSE OBJECTIVES:**

1. Discuss the respiratory physiology specific to cellular respiration as it applies to evidenced practice in anesthesia.
2. Describe the functional respiratory anatomy as it applies to evidenced base practice in anesthesia.
3. Discuss the mechanics of ventilation as it applies to evidenced based practice in anesthesia.
4. Discuss ventilation/perfusion relationships and its relationship to alveolar, arterial, & venous gas tensions as it applies to evidenced base practice in anesthesia.
5. Describe transport of respiratory gases in blood as it applies to evidenced base practice in anesthesia.
6. Discuss anesthesia for patients with respiratory disease, including PFTs and flow-volume loops as it relates to evidenced based practice in anesthesia.

7. Discuss cardiovascular physiology related to initiation & conduction of the cardiac impulse, mechanisms of contraction inclusive of pressure-volume curves as it relates to evidenced based practice in anesthesia.
8. Discuss anesthesia for patients with cardiovascular disease as it related to evidenced based practice in anesthesia.
9. Discuss anesthesia for cardiovascular surgery as it relates to evidenced based practice in anesthesia.
10. Discuss the anatomy of the sympathetic nervous system and parasympathetic system as it relates to evidenced practice in anesthesia.
11. Discuss the physiology of the autonomic nervous system as it relates to evidenced based practice in anesthesia.
12. Discuss the interactions of neurotransmitters with receptors, adrenergic agonists & antagonists as it relates to evidenced based practice in anesthesia.
13. Analyze various methods to assure operating room safety when managing the pediatric, obstetric and geriatric patients undergoing anesthesia.
14. Demonstrate advanced verbal and written communication skills.
15. Analyze the gaps between research and its implementation in practice.

**REQUIRED REFERENCES FOR EVIDENCED BASED PRACTICE FOR ANESTHESIA PORTION:**

1. 5 Current Research Articles as it relates to the topic of discussion.
2. Fleisher, L. (2004). Evidenced-Based Practice Anesthesiology. W.B. Saunders Company. (Suggested but use anything current from UPenn Biomed Library)

**RECOMMENDED TEXTS FOR PHYSIOLOGY PORTION and EXAMPLES OF CONTENT FOR PRESENTATIONS:**

1. Recommended source for physiology portion: Nagelhout, Barash or Morgan & Mikhail.  
(for example, oxyhemoglobin dissociation curve, cellular respiration related to aerobic and anaerobic metabolism, conversion of CO<sub>2</sub> to bicarbonate in Red Blood Cells).
2. Nagelhout, Barash or Morgan & Mikhail (for example, anatomy of the larynx, nerve innervation of the larynx).
3. Nagelhout, Barash or Morgan & Mikhail (for example, control of ventilation, respiratory centers, central and peripheral chemoreceptors).
4. Nagelhout, Barash or Morgan & Mikhail (for example, distribution of ventilation and perfusion in the awake, upright spontaneously breathing individual, distribution of ventilation and perfusion in the anesthetized, lateral decubitus patient).

5. Nagelhout, Barash or Morgan & Mikhail (for example, O<sub>2</sub> carrying capacity of blood, calculations of dissolved O<sub>2</sub>, bound O<sub>2</sub> and total O<sub>2</sub>, CO<sub>2</sub> dissociation curve).
6. Nagelhout, Barash or Morgan & Mikhail (for example, anesthesia for COPD patients, restrictive VS obstructive).
7. Nagelhout, Barash or Morgan & Mikhail (for example, anesthesia for CAD patients, HTN patients and beta blockade).
8. Nagelhout, Barash or Morgan & Mikhail (for example, anesthesia for carotid surgery, anesthesia for mediastinoscopy, AAA surgery).
9. Stoelting (for example, diagram of the anatomy of the SNS and PSNS, alpha and beta adrenergic receptors).
10. Basics, Stoelting (for example, fight or flight, cholinergic and responses, preganglionic and postganglionic nerves).

**TEACHING METHODS:**

Student led seminars, discussion and presentations

**EVALUATION METHODS:**

Leading of seminar discussion/Oral report – 30%

**See handout related to :**

- Organizational structure
- Delivery of content
- Ability to answer questions related to the topic
- Case presentation evaluation form

Quizzes (4) – 60%

Class Participation – 10%

**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. 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.

**REQUIRED TEXTS:**

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

Nagelhout, John & Plaas, Karen. (2013). Nurse Anesthesia 5<sup>th</sup> Edition. Phila., PA : W.B. Saunders Company.

Stoelting, R.K. (2005). Pharmacology & Physiology in Anesthetic Practice 4<sup>th</sup> Edition. Phila., PA: Lippincott, Williams & Wilkins.

**RECOMMENDED TEXTS:**

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

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

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

Yao & Artusio. (2007). Anesthesiology, Problem Oriented Patient Management 5<sup>th</sup> Edition. Phila., PA: Lippincott, Williams & Wilkins.

**WEEKLY TOPICAL OUTLINE:**

<b>Day/Time</b>	<b>Topic</b>	<b>Objective</b>	<b>Readings</b>
Week 1 5-19-14	Orientation to course/ schedule, design of groups, structure of content delivered, stent lecture Anesthesia math (6/2/14) Senior graduation, no class	1, 2,3	Nagelhout Respiratory Physiology & Anesthesia Chapter
Week 2	Memorial Day	No Class	
Week 3 6-2-14	Orientation to course/ schedule, design of groups, structure of content delivered, stent lecture, Anesthesia math GIDARO	1, 2,3	Nagelhout Respiratory Physiology & Anesthesia Chapter
Week 4 6-09-14	Evidenced based practice as it relates to respiratory anatomy & physiology Presentation- <b>Group 1</b>	1,2,3,13,14	Nagelhout, Respiratory Physiology & Anesthesia Chapter
Week 5 6-16-14	Evidenced based practice research data presentation- <b>Group 1</b> QUIZ #1	13,14,15	Related article(s) and/or chapter in EBP-Fleisher,L.
Week 6 6-23-14	Mike Ford CRNA Guest Lecturer	TBA	TBA
Week 7 6-30-14	Evidenced based practice as it relates to respiratory disease Presentation- <b>Group 2</b>	4,5,6,13,14	Nagelhout, Respiratory Physiology & Anesthesia Chapter
Week 8 7-7-14	Evidenced based practice research data presentation <b>Group 2</b> QUIZ#2	13,14,15	Related article(s) and/or chapter in EBP-Fleisher,L.
Week 9 7-14-14	Evidenced based practice as it relates to cardiovascular anatomy & physiology Presentation- <b>Group 3</b>	7,8,9,13,14	Cardiovascular Physiology & Anesthesia Chapter, Anesthesia for Patients With Cardiovascular Disease Chapter, Nagelhout

Week 10 7-21-14	Evidenced based practice research data presentation <b>Group 3 QUIZ#3</b>	13,14,15	Related article(s) and/or chapter in EBP-Fleisher,L.
Week 11 7-28-14	Evidenced Based Practice as it relates to the anatomy & physiology of the ANS Presentation- <b>Group 4</b>	10,11,12,13,14	Nagelhout, Adrenergic Agonists & Antagonist Chapter
Week 12 8-04-14	Evidenced Based Practice research data presentation <b>Group 4 QUIZ#4</b>	13,14,15	Related article(s) and/or chapter in EBP-Fleisher,L

**TOTAL NUMBER OF THEORY HOURS: 45**

**TOTAL NUMBER OF CLINICAL HOURS: 0**

**QUIZ- 10 questions-multiple choice answer or essay question.**

**Time Table : Non Quiz Day**

**430-5pm Speaker 1  
5-530pm Speaker 2  
530-545pm Break  
545-615pm Speaker 3  
615-645pm Speaker4  
645-730pm discussion**

**Time Table: Quiz Day**

**430-530pm Quiz  
530-545pm Break  
545-615pm Speaker 4 or 5 (article presentation)  
615-730pm Discussion**

## **PRESENTATION GUIDELINES:**

Groups will consist of 6, 5 or 4 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, 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
- 
- Four groups
  - Each group will present once, 4 or 5 members of the group will present material using power point or google on the first date, the last member will present the article on the second date also utilizing power point or google to summarize the article with relative concepts/ideas also presented.
  - The groups with 6 members will modify their content to include a 6<sup>th</sup> speaker.
  - 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 Nagelhout, 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.
  - 25-30 minute presentations for each presenter, including the presenter of the article. Each group will have a discussion group created in order to post their material.
  - Each group will post to the discussion group one research article presentation related to the topic of discussion (the Sunday prior to your presentation). 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 or google must be utilized for the presentations. This presentation must be posted to the discussion group (the Sunday prior to your presentation). 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 Canvas.
- 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.
- The oral presentation-seminar discussion is **30%** of your N 746 grade, Please print and bring in the presentation evaluation form included in this syllabus.

## **Organizational Structure Guidelines for Seminar Discussion Oral Presentation-30%**

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 20 minutes. A student representative will signal to indicate a 3-minute warning and again a 1-minute warning, when 20-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 17 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 20 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 30% 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 17-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--powerpoint 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 powerpoint MUST be posted to the discussion group by the Sunday prior to your presentation via blackboard and then a hard copy the day of class.
- DUE THE DAY OF YOUR PRESENTATION:
  - Case Presentation Evaluation Form
  - A copy of YOUR portion of the powerpoint 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)

15

/100 points (Grade Total = Average X 20)

