UNIVERSITY OF FLORIDA

COLLEGE OF NURSING

COURSE SYLLABUS

SPRING 2014

COURSE NUMBER NGR 6371, Section 2100

COURSE TITLE Pharmacotherapeutics for Neonatal Nurse Practitioners

CREDITS 3

PLACEMENT DNP Program: Neonatal Nurse Practitioner Track

# PREREQUISITES NGR 6140 Physiology and Pathophysiology for Advanced

Nursing Practice

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| --- | --- | --- | --- | --- | --- |
| **FACULTY** |  |  | |  | |
| Jacqui Hoffman, DNP, NNP-BC  [hoffmanjm@ufl.edu](mailto:hoffmanjm@ufl.edu)  **DEPARTMENT CHAIR** |  | | Cell 727-709-9211 | | Office Hours: Virtual on Adobe Connect  Mon. 8:00 – 9:00 AM and 1:00-2:00 PM; additional hrs by appt | |
| Susan Schaffer, PhD, ARNP, FNP-BC  Department Chair  [sdschaf@ufl.edu](mailto:sdschafr@ufl.edu)  Gainesville Campus | HPNP 2229 | | Office 352-273-6366 | | Available by appt | |
| CAMPUS DIRECTOR JAX |  | |  | |  | |
| Andrea Gregg, DSN, RN  Associate Professor  [greggac@nursing.ufl.edu](mailto:greggac@nursing.ufl.edu)  Jacksonville Campus | JAX  LRC, 3rd Floor | | Office: 904-244-5172  Fax: 352-273-6568 | | Available by appt | |

COURSE DESCRIPTION This course provides the knowledge and skills to assess, diagnose, and pharmacologically manage secondary and tertiary health problems in a safe, high quality, cost-effective manner. Emphasis is on the development of therapeutic decision-making in medication selection, applying principles of pharmacokinetics and pharmacodynamics in the care of full-term and pre-term newborn infant with acknowledgment of their unique physiological and pathophysiological. Focus is on special considerations, selection, and management of medication therapy, prescriptive practice, and monitoring therapeutic responses to pharmacological agents in neonates/infants.

COURSE OBJECTIVES Upon completion of this course the student will be able to:

1. Apply general principles of pharmacokinetics and pharmacodynamics in selecting medications for the neonate/infants.
2. Analyze the relationship between pharmacologic agents and physiologic/pathologic responses as applicable to neonates/infants.
3. Compare and contrast pharmacological agents with respect to treatment of specific acute and chronic health problems seen in neonates/infants.
4. Select pharmacologic agents for the management of neonatal health problems based on the problem being managed and cost effectiveness.
5. Identify actual and potential adverse medication reactions and significant medication interactions as applied to the care of neonates/infants.
6. Evaluate the effectiveness of selected medication regimens used in the care of neonates/infants.

COURSE SCHEDULE

|  |  |  |  |
| --- | --- | --- | --- |
|  | Day | Time | Room |
| Class | On-line | Mon 2:00 – 5:00 Adobe Connect | |

E-Learning in Sakai is the course management system that you will use for this course. E-Learning in Sakai is accessed by using your Gatorlink account name and password at <http://lss.at.ufl.edu>. There are several tutorials and student help links on the E-Learning login site. If you have technical questions call the UF Computer Help Desk at 352-392-HELP or send email to [helpdesk@ufl.edu](mailto:helpdesk@ufl.edu).

It is important that you regularly check your Gatorlink account email for College and University wide information and the course E-Learning site for announcements and notifications.

Course websites are generally made available on the Friday before the first day of classes.

ATTENDANCE & MAKE UP POLICY

Students may be expected to attend on-campus or synchronous classes periodically. Students are expected to participate in the activities and discussions as listed in the course syllabus and on the course web-site. Timeframes for the posting and receiving of materials are listed in the course materials on the course web-site.

Requirements for class attendance and make-up exams, assignments, and other work are consistent with university policies that can be found at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

This course will use one of UF’s web hosted collaborative software applications (Adobe

Connect and or Voice Thread) for lecture presentation and or assignments.  These collaborative applications have the functionality of recording your text, audio and/or video comments.   If you do not want to be recorded please notify assigned faculty member prior to the first class.  You do not need to provide a photo or use the video comment option, this is your choice.  The recordings are accessed through web links provided by your faculty member and should not be shared with anyone not enrolled in the course. The recordings are available to the class during the semester.  The recordings will not be used in another course.

**ProctorU**:

* + Major course examinations will be administered via ***ProctorU***, a live proctoring service, to ensure a secure testing environment.
  + Each student computer must be in compliance with Policy S1.04, *Student Computer Policy* and must contain a web cam, microphone, and speakers.
  + Each examination will cost $22.50 per exam.
  + Students go to the website <http://www.proctoru.com/> and click on “How To Get Started”. This will permit students to create an account and test out their system.
  + Once an instructor makes an exam available, students go online to ***ProctorU*** to schedule and pay for the exam session. Students must provide a valid email address and phone number where they can be reached during an exam.
  + CON IT Support office will oversee this process and provide technical assistance.

**ACCOMMODATIONS DUE TO DISABILITY**

Each semester, students are responsible for requesting a memorandum from the Disability Resource Center (<http://www.dso.ufl.edu/index.php/drc/>) to notify faculty of their requested individual accommodations. This should be done at the start of the semester.

**COUNSELING AND STUDENT HEALTH**

Students may occasionally have personal issues that arise on the course of pursuing higher education or that may interfere with their academic performance. If you find yourself facing problems affecting your coursework, you are encouraged to talk with an instructor and to seek confidential assistance at the University of Florida Counseling and Wellness Center, 352-392-1575, visit their web site for more information: <http://www.counseling.ufl.edu/cwc/>.

**STUDENT HANDBOOK**

Students are to refer to the College of Nursing Student Handbook for information about College of Nursing policies, honor code, and professional behavior. <http://nursing.ufl.edu/students/student-policies-and-handbooks/>

**ACADEMIC HONESTY**

The University of Florida Student Conduct and Conflict Resolution Policy may be found at

<http://www.dso.ufl.edu/index.php/sccr/process/student-conduct-honor-code/>

# TOPICAL OUTLINE

1. Clinical pharmacokinetics and individualization of medication therapy including absorption, distribution, metabolism and excretion.
2. Principles of half-life, effective concentration, peak plasma levels, therapeutic blood levels, and minimal and maximum effective levels.
3. Pharmacodynamics, including alterations of cell environment and functions and medication receptor activity.
4. Pharmacotherapeutic decision-making for common acute and chronic health problems including medication selection, intervention, and adverse reactions.
5. Therapeutic response to pharmacological agents.
6. Adverse medication reactions and appropriate interventions.
7. Prescriptive practice and dispensing limitations for advanced practice nurses including writing prescriptions, legal authority and restrictions, ethics, and clinical standards.
8. Resource utilization
9. Medication use during pregnancy and lactation
10. Specific neonatal therapeutics
11. Antimicrobials
12. Vaccines
13. Respiratory agents
14. Cardiovascular agents
15. Endocrine agents
16. Renal agents
17. Hematologic agents
18. Resuscitative agents
19. CNS agents
20. Gastrointestinal agents
21. Skin care agents
22. Pain management
23. Nutritional agents

# TEACHING METHODS

Online lecture, discussion, case studies, written materials, computer assisted instruction and audiovisual materials

LEARNING ACTIVITIES

Online and class participation and written assignments.

EVALUATION METHODS/COURSE GRADE CALCULATION

Students will be evaluated by examination and case study assignments.

Case Studies (6) – 10% each

Exams (2) – 20% each

See schedule and further instructions under “Additional Course Information” below

All graded assignments will be graded and returned to the student within 2 weeks of submission unless otherwise notified.

**MAKE UP POLICY**

Make-up exams will only be arranged in the event of extreme emergencies and the course faculty must be notified in advance. Students who have extraordinary circumstances preventing submitting any case study assignment by the due date should explain these circumstances to the course instructor **prior** to the scheduled assignment due date. Failure to discuss prior to the due date will result in the missed case study assignment not being accepted once the assignment has been reviewed in class. If the case study assignment has not been reviewed in class, a letter grade will be lost for each additional day the assignment is late, if the student did give prior notification to the course faculty.

GRADING SCALE/QUALITY POINTS

A 95-100 (4.0) C 74-79\* (2.0)

A- 93-94 (3.67) C- 72-73 (1.67)

B+ 91- 92 (3.33) D+ 70-71 (1.33)

B 84-90 (3.0) D 64-69 (1.0)

B- 82-83 (2.67) D- 62-63 (0.67)

C+ 80-81 (2.33) E 61 or below (0.0)

\* 74 is the minimal passing grade

For more information on grades and grading policies, please refer to University’s grading policies: http://gradcatalog.ufl.edu/content.php?catoid=4&navoid=907#grades

FACULTY EVALUATION

Students are expected to provide feedback on the quality of instruction in this course based on ten criteria.  These evaluations are conducted online at <https://evaluations.ufl.edu>.  Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open.  Summary results of these assessments are available to students at <https://evaluations.ufl.edu>.

# REQUIRED TEXTBOOKS

Blackburn, S. (2013). Maternal, fetal, and neonatal physiology: A clinical perspective. (4th ed.). Elsevier. ISBN: 9781437716238.

Yaffe, S. J. & Aranda, J. V. (2010). *Neonatal and Pediatric Pharmacology: Therapeutic Principles in Practice* (4th ed.). Philadelphia: Lippincott Williams & Wilkins. ISBN: 9780781795388

Young, T. E., & Mangum, B. (Most recent edition – available online). *Neofax.*

**WEEKLY CLASS SCHEDULE**

|  |  |  |
| --- | --- | --- |
| **Date** | **Topic** | **Readings** |
| Week 1 and 2  Monday, January 6th (pre-recorded)  Monday, January 13th | Pharmacokinetics and Pharmacodynamics Across the Lifespan and Contrasting to the Neonate | Blackburn – Chapter 17  Yaffe - Chapters 1-5, 9-14, 16, 17, 58-60    Johnson, P. (2011). Neonatal pharmacology-pharmacokinetics. *Neonatal Network,* 30, 54-61.  **Supplemental Readings**  Briggs, G. G. & Wan, S. R. (2006). Drug therapy during labor and delivery, part 1. *American Society of Health-System Pharmacists,* 62, 1038-47.  Briggs, G. G. & Wan, S. R. (2006). Drug therapy during labor and delivery, part 2. *American Society of Health-System Pharmacists,* 62, 1131-9.  Della-Giustina, K. & Chow, G. (2003). Medications in pregnancy and lactation. *Emergency Medicine Clinics of North America*, 21, 585-613.  Nice, F. J., DeEugenio, D., DiMano, T. A., Freeny, I. C., Rovnack, M. B., & Gromelski, J. S. (2004). Medications and breast-feeding: A guide for pharmacists, pharmacy technicians and other health care professionals part 1. *Journal of Pharmacy Technology,* 20, 17-27.  Nice, F. J., DeEugenio, D., DiMano, T. A., Freeny, I. C., Rovnack, M. B., & Gromelski, J. S. (2004). Medications and breast-feeding: A guide for pharmacists, pharmacy technicians and other health care professionals part 2. *Journal of Pharmacy Technology,* 20, 165-77.  Stavroudis, T. A., Miller, M. R.,& Lehmann, C. U. (2008). [Medication errors in neonates.](http://www.ncbi.nlm.nih.gov/pubmed/18280880?ordinalpos=189&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DefaultReportPanel.Pubmed_RVDocSum) *Clinics in Perinatology*. 35, 141-61.  Tse, Y. & Rylance, G. (2006). Prescribing for newborns and infants: Part 1 – pharmacology. *Infant,* 2, 90-4.  Tse, Y. & Rylance, G. (2006). Prescribing for newborns and infants: Part 2 – pharmacology. *Infant,* 2, 174-7. |
| Weeks 3 and 4  January 21st (holiday) – class will be recorded  January 27th | Antimicrobials | Yaffe chapters 22, 29, 30, 35, 36    Carlson, C. A. (2010). Antibiotics and pharmacotherapeutics in the neonate. *Newborn & Infant Nursing Reviews,* 10, 203-8.  Chirico, G., Barbieri, F., & Chirico, C. (2009). Antibiotics for the newborn. *Journal of Maternal-Fetal & Neonatal Medicine,* 22 (Suppl 3), 46-9.  Clark, R. H., Bloom, B. T., Spitzer, A. R. & Gerstmann, D. R. (2006). Empiric use of ampicillin and cefotaxime, compared with ampicillin and gentamicin, for neonates at risk for sepsis is associated with an increased risk of neonatal death. *Pediatrics*, 117, 67-74.  Cotton, C. M., McDonald, S., Stoll, B., Goldberg, R. N., Poole, K., & Benjamin, D. K.. (2006). The association of third-generation cephalosporin use and invasive candidiasis in extremely low birth-weight infants. *Pediatrics*, 118, 717-22.  Domonoske, C., & Severson K. (2009). Antimicrobial use and bacterial resistance in neonatal patients. *Critical care Nursing Clinics of North America,* 21, 87-95.  Johnson, P. (2012). Antibiotic resistance in the NICU. *Neonatal Network,* 31: 109-114.  Lutsar, I. & Metsvaht, T. (2010). Understanding pharmacokinetics/ pharmacodynamics in managing neonatal sepsis. *Current Opinion in Infectious Diseases,* 23, 201-7.  **Supplemental Readings**  Bell, S. G. (2004). Highly active antiretroviral therapy in neonates and young infants. *Neonatal Network*, 23(2), 55-59.  Dawson, P. M. (2002). Vancomycin and gentamicin in neonates: Hindsight, current controversies, and forethought. *Journal of Perinatal, Neonatal Nursing,* 16(2), 54-72. |
| Week 5  February 3rd | Respiratory Therapies | Yaffe chapters 19, 20, 40  Cole, F. S., Alleyne, C., Barks, J. D., Boyle, R. J…& Rowitch, D. H. (2011). NIH Consensus Development Conference statement: Inhaled nitric-oxide therapy for premature infants. *Pediatrics,* 127, 363-9.  DiBlasi, R. M., Myers, T. R., & Hess, D. R. (2010). Evidence-based clinical practice guideline: Inhaled nitric oxide for neonates with acute hypoxic respiratory failure. *Respiratory Care,* 55, 1717-45.  Johnson, P. J. (2011). Caffeine citrate for apnea of prematurity. *Neonatal Network,*  30, 408-12.  Moreira, A., Caskey, M., Fonseca, R., Malloy, M, & Geary, C. (2011). Impact of providing vitamin A to the routine pulmonary care of extremely low birth weight infants. *Journal Maternal Fetal Neonatal Medicine,* July 11, 2011 Epub ahead of print.  Spillers J. (2010). [PPHN: Is sildenafil the new nitric? A review of the literature.](http://www.ncbi.nlm.nih.gov.lp.hscl.ufl.edu/pubmed/20386371) *Advances in Neonatal Care*. 10(2), 69-74.  **Supplemental Readings:**  Ghodrat, M. (2006). Lung surfactants. *American-Journal of health-System pharmacy,* 63, 1504-21.  Mulla, H., Lawson, G., Woodland, E. D., Peek, G. J., Killer, H., Firmin, R. K., and Upton, D. (2000). Effects of neonatal extracorporeal membrane oxygenation circuits on drug disposition. *Current Therapeutic Research,* 61, 838-48. |
| Week 6  February 10th | Gastrointestinal Therapies | Yaffe Chapter 50  Barney, C. K., Baer, V. L., Scoffield, S. H., Lambert, D. K., Cook, M., & Christensen, R. D. (2009). Lansoprazole, ranitidine, and metoclopramide: Comparison of practice patterns at 4 level III NICUs within one healthcare system. *Advances in Neonatal Care,* 9, 129-31.  Malcolm, W. F., Gantz, M., Martin, R. J., Goldstein, R. F., Goldberg, R. N., & Cotton, C. M. (2008). Use of medications for gastroesophageal reflux at discharge among extremely low birth weight infants. *Pediatrics,* 121, 22-7.  Schurr, P. & Findlater, C. (2012). Neonatal mythbusters: evaluating the evidence for and against pharmacologic and nonpharmacologic management of gastroesophageal reflux. *Neonatal Network,*  31: 229-241.  **Supplemental reading:**  Bell, S.G. (2003). Gastroesophageal reflux and histamine antagonists. *Neonatal Network*. 22: 53-57. |
| Week 7  February 17th | Resuscitative agents | Bottor, L. T. (2009). Rapid sequence intubation in the neonate. *Advances in Neonatal Care,* 9, 111-7.  Carbajal, R., Eble, B., & Anand, K. J. (2007). [Premedication for tracheal intubation in neonates: confusion or controversy?](http://www.ncbi.nlm.nih.gov/pubmed/17905186?ordinalpos=9&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DefaultReportPanel.Pubmed_RVDocSum) *Seminars in Perinatology*. 31(5):309-17.  Johnson, P. (2013). Normal saline bolus infusion for hypoperfusion in the newborn. *Neonatal Network,* 32: 41-45.  Neonatal Resuscitation Textbook (2011) 6th edition, chapter 6. |
| Week 8  Exam  February 24th, 2:00-4:00PM |  |  |
| Week 9  March 3rd | Spring Break |  |
| Week 10  March 10th | Cardiac and vascular therapies | Yaffe chapter 42    Beaulieu, M. (2013). Vasopressin for the treatment of neonatal hypotension. *Neonatal Network,* 32: 120-124.  Caresta, E., Papoff, P., Benedetti, V. S., Mancuso, M., Cicchetti, R., Midulla, F., & Moretti, C. (2010). What’s new in the treatment of neonatal shock. *Journal Maternal Fetal Neonatal Medicine,* 24 (Suppl 1), 17-9.  Torres, M. & Nieves, J. A. (2009). Progress in congenital cardiac care for newborns and infants: The emerging role of “off-label” medications. *Newborn & Infant Nursing Reviews,* 9, 18-30.  Vargo, L. & Seri, I. (2011) New NANN Practice Guideline: The management of hypotension in the very-low-birth-weight infant. *Advances in Neonatal Care,* 11, 272-8. (Guideline is available free of charge at [www.nann.org](http://www.nann.org), click on Guidelines in the Education Section).  **Supplemental reading:**  Bell, S.G. (2003). Milrinone. *Neonatal Network,* 22, 61-63.  Strodtbeck, F. & Theorell, C. (2002). Drug therapy for infants with cardiac disease. *Newborn & Infant Nursing Reviews,* 2, 60-74.  Subhedar, N.V. (2003). Treatment of hypotension in newborns. *Seminars in Neonatology*, 8, 413-423.  Valverde, E., Pellicer, A., Madero, R., Elorza, D. Quero, J., & Cabanas, F. (2006). Dopamine versus epinephrine for cardiovascular support in low birth weight infants: Analysis of systemic effects and neonatal clinical outcomes. *Pediatrics*, 117, e1213-22. |
| Week 11  March 17th | Skin Care Therapy | Yaffe, chapter 26 |
| Week 12  March 24th | CNS therapies | Yaffe, chapters 21, 37  Beaulieu, M. (2013). Levetiracetam. *Neonatal Network,*  32: 285-288.  Bio, L. L., Siu, A., & Poon, C. Y. (2011). Update on pharmacologic management of neonatal abstinence syndrome. *Journal of Perinatology,*  31, 696-701.  Jensen, F. E. (2009). Neonatal seizures: An update on mechanisms and management. *Clinics in Perinatology,* 36, 881-900.  Zanelli, S., & Fairchild, K. (2009). Physiologic and pharmacologic effects of therapeutic hypothermia for neonatal hypoxic ischemic encephalopathy. *Newborn & Infant Nursing Reviews,* 9, 10-7.  **Supplemental reading:**  Rennie, J., & Boylan, G. (2007). Treatment of neonatal seizures. *Archives of Disease in Childhood – Fetal & Neonatal Edition,* 92, F148-50. |
| Week 13  March 31st | Pain management | Yaffe, chapters 41, 46, 47  DeLima, J., & Carmo, K. B. (2010). Practical pain management in the neonate. *Best Practice& Research. Clinical Anaesthesiology,* 24, 291-307.  Kaneyasu, M. (2012). Pain management, morphine administration and outcomes in preterm infants: A review of the literature. *Neonatal Network,* 31: 21-30.  **Supplemental readings:**  Bell SG. (2004). [The pharmacology of palliative care.](http://www.ncbi.nlm.nih.gov/pubmed/15612421?ordinalpos=23&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DefaultReportPanel.Pubmed_RVDocSum) *Neonatal Network*, 23(6), 61-4.  Coleman, M. M., Solarin, K., & Smith, C. (2002). Assessment and management of pain and distress in the neonate, *Advances in Neonatal Care,* 2, 123-139. |
| Week 14  April 7th | Renal and Endocrine Therapies | Yaffe chapters 43, 51-53  LaFranci, S. H. (2011). Approach to the diagnosis and treatment of neonatal hypothyroidism. *The Journal of Clinical Endocrinology and Metabolism,* 96, 2959-67.  Moghal, N. E., & Shenoy, M. (2008). Furosemide and acute kidney injury in neonates. *Archives of Disease in Childhood – Fetal & Neonatal Edition,* 93(4), F313-6.  Stewart, A. & Brion, L. P. (2011). Intravenous or enteral loop diuretics for preterm infants with (or developing) chronic lung disease. *Cochrane Database of Systematic Reviews, 7, 9:CD001453.*  Stewart, A., Brion, L. P., & Ambrosio-Perez, I. (2011). Diuretics acting on the distal renal tubule for preterm infants with (or developing) chronic lung disease. *Cochrane Database of Systematic Reviews, 7, 9:CD001817.*  **Supplemental reading:**  Brion, L. P. & Soll, R. (2008). Diuretics for respiratory distress syndrome in preterm infants. *Cochrane Database of Systematic Reviews,1:CD001454.* |
| Weeks 15 and 16  April 14th and 21st | Nutritional Support, Agents used in Diagnostic Procedures, biological, experimental therapies, over the counter medications | Yaffe chapters 56, 57  Bishara, N., & Ohis, R. K. (2009). Current controversies in the management of anemia of prematurity. *Seminars in Perinatology,* 33, 29-34.  Cohen-Wolkowiez, M., Benjamin, D. K., & Capparelli, E. (2009). Immunotherapy in neonatal sepsis: Advances in treatment and prophylaxis. *Current Opinion in Pediatrics,*  21, 177-81.  Mactier, H., Mokaya, M. M., Farrell, L., & Edwards, C. A. (2011). Vitamin A provision for preterm infants: Are we missing current guidelines? *Archives of Disease in Childhood. Fetal and Neonatal Edition,* 96, F286-9.  Navarro, M., Negre, S., Golombek, S., Matoses, M. L., & Vento, M. (2010). Intravenous immune globulin: Clinical applications in the newborn. *NeoReviews,* 11, e370-378.  Whitlow, P. (2011). Update on immunizations commonly used in the NICU. *Advances in Neonatal Care,*  11, 173-9.  Wood, N., & Siegrist, C. A. (2011). Neonatal immunizations: Where do we stand? *Current Opinion in Infectious Diseases,* 24, 190-5.  **Supplemental readings:**  Bell, S.G. (2006). Immunomodulation, Part III: IVIG. *Neonatal Network*, 25, 213-221.  Greer, F. R. (2001). Fat-Soluble vitamin supplements for enterally fed pre-term Infants. *Neonatal Network*, 20, 7-11.  Mainie, P. (2008). [Is there a role for erythropoietin in neonatal medicine?](http://www.ncbi.nlm.nih.gov/pubmed/18653293?ordinalpos=38&itool=EntrezSystem2.PEntrez.Pubmed.Pubmed_ResultsPanel.Pubmed_DefaultReportPanel.Pubmed_RVDocSum) *Early Human Development,* 84, 525-32.  Nevin-Folino, N. L., Loughead, J. L., & Loughead, M. K. (2001). Enhanced-calorie formulas: Considerations and options. *Neonatal Network*, 20(1), 7-15. |
| April 29th finals week  Exam - **Tues April 29th,**  **9-11AM** |  |  |

**ADDITIONAL COURSE INFORMATION**

* **Examinations**

There will be two exams. Each exam will consist of multiple-choice questions. The exams will be done using Proctor U. The exam will be available from 2PM – 4:00 PM on test date; you must sign in at 1:45 PM sharp in order for Proctor U to complete the student identity assurance process. The student can do nothing other than sit at their computer, view their monitor to read the questions, use their mouse and or keyboard if necessary to answer and submit the examination. No one else is permitted in the room, and the student cannot leave the room during their examination. No cell phones or other devices are allowed. You may use a standard calculator.

### Exam schedule

Exam 1 Monday, February 24th (2:00-4:00 PM), Weeks 1 thru 7

Exam 2 Tuesday, April 30th (9:00-11:00 AM), Weeks 10-16

* **Case study assignments**

Students will do six case study assignments. The criteria for the case studies can be found in the syllabus. These will be posted 2 weeks prior to the due date. Completed case studies should be submitted through the assignment drop box.

### Case study schedule

Case study 1 Due January 27th

Case study 2 Due February 17th

Case study 3 Due March 3rd

Case study 4 Due March 17th

Case study 5 Due March 31st

Case study 6 Due April 14th

Case studies

Each patient situation will include History of Present Illness, Past Medical History, Social history, medications (if any), Review of Systems, and Physical Exam, including labs.

For each situation, you will answer the questions asked after the case study. Please keep your answers brief and to the point. You must answer the questions after each case study using the format provided in steps 1 through 4. Be specific and support your choices with references. If in doubt about how to do any of these case studies, please e-mail me. If there seems to be a common theme in the e-mails I will post to the Main Bulletin Board.

This is NOT a formal paper, however I do expect that you use correct grammar and spelling as well as complete sentences (points will be deducted if you do not). You do not need to write the case studies in APA format. Be concise but thorough in your responses to the questions. Do not include a discussion of the pathophysiologic processes involved in the patient’s disease process or treatments other than pharmacologic treatments (example oxygen therapy or ventilation). Focus on the pharmacologic intervention that you have chosen. You are to talk your way through your thought processes as you choose a pharmacotherapeutic regime for your patient and provide rationale. It is expected that you use several current references. Although you may use neonatal text books for references, it is also expected that you include current references.

Items 1 through 4 describe the information you must provide in each of your answers. This means that there will be five parts to each case study. The references will count 10 points. Answer 1 will count 60 points and answers 2-4 will count 10 points each for a total of 100 points per case study.

1. **Provide rationale for the medication(s) you prescribed. Justify your selection over alternatives (60 points).**

The purpose of this step is to determine the drug, dosage form, dose, schedule, and duration of therapy that are best suited for a given patient. Individual patient characteristics must be taken into consideration when weighing the risks and benefits of each available therapeutic alternative. You must choose a specific pharmacologic agent(s) and dosage to be used and discuss the rationale for your decision. The reason for avoiding specific drugs should be stated in the therapeutic plan. Potential reasons for drug avoidance include, drug-drug or drug-disease interaction, patient age, renal/ hepatic impairment, or adverse effects.

1. **What are alternative treatment should the regime in #1 fail (10 points)?**

Once you have discussed your pharmacotherapeutic plan, you will then identify all the reasonable alternate therapeutic choices that you would consider should the initial treatment plan fail. Discuss only the drug(s) that you would consider using. The provider should ensure that all feasible pharmacotherapeutic alternatives available for achieving the therapeutic outcome(s) are considered before choosing a single therapeutic regimen. Non-drug therapies that might be useful should be included in the list of therapeutic alternatives when appropriate.

1. **Describe how you will monitor the patient for the efficacy of the medication(s) (10 points).**

You must identify the clinical and laboratory parameters necessary to evaluate the therapy for achievement of the desired therapeutic outcome and for detection and prevention of adverse effects. The outcome parameters selected should be directly related to therapeutic goals, and each parameter should have a defined end point. If the goal was to cure bacterial pneumonia, you should outline the subjective & objective clinical parameters (e.g. decreased oxygen requirement), laboratory tests (e.g. normalization of WBC with diff), and other procedures (e.g. resolution of infiltrate on chest x-ray) that provide sufficient evidence of bacterial eradication and clinical cure of the disease.

1. **What are potential side effects and how will they be managed (10 points)?**

Adverse effect parameters must also be well defined and measurable. Identifythe likely specific adverse effect and outline a prospective schedule for obtaining the appropriate parameters. Monitoring for adverse effects should be directed toward preventing or identifying serious adverse effects that have a reasonable likelihood of occurrence.

1. **Reference List (10 points) – grammar and correct spelling will be included in this portion.**

**Final words and grading guidelines**

Be patient with yourself. While you may have many years of experience as a RN and have operated from a protocol, you have never prescribed drugs. This is a higher level of responsibility. This course requires you to think about medications in a completely different way. Analyze each situation carefully before you choose your treatment plan. Your therapeutic choices must be based on pathophysiologic data, current pharmacotherapeutic studies & research, patient diagnosis, and national treatment guidelines. You must become used to justifying your therapeutic treatment choices. In practice, you will often be asked to provide a rationale for your pharmacotherapeutic choice(s).

The study of pharmacology is a never-ending process for all health care providers. This course is just the beginning of your study of pharmacology. The role of APN is different than staff nurse. You will be expected to prescribe medications based on your diagnosis. This is an overwhelming responsibility. You will no longer be following physician orders; you will be the one writing the orders.

In the first two lectures you will be given a general overview of pharmacokinetics, pharmacodynamics, and drug interactions. The remainder of the lectures will be on the pharmacokinetics of various drug classes. The format of this course is straightforward. You will read the assigned readings for each week and complete the case study assignments. Please refer to the Course Outline and course Syllabus for detailed information on course objectives and course requirements..

There are several words of advice that I can give you in this course. First, you must keep up with the reading assignments. Don’t wait until the week before an exam to study. The on-line nature of this course requires you to be self-motivated. MOST IMPORTANT – If you are confused or having problems, please contact me immediately.

DATE: 5/27/09, edits 1/29/10, 2/10/10, 6/11, 12/11, edits 8/12; 5/13