**JFK Muhlenberg Harold B. and Dorothy A. Snyder Schools of Nursing and Medical Imaging**

**NURM 100**

**Instructors:**

**COURSE START:**

**COURSE END:**

**COURSE LENGTH:**  15 Weeks

**Course Time**: Online

**Class Location: Online**

**Co-requisites:** BIO 105, CHM 114, ENG 101, NURM 119

**Pre-requisites:** 3 credit high school math course, and passing of UCC Entrance Exam

**Total Contact Hours:** 1 theory hour per week = 14 hours

**Semester Credit Hours:** 1

**NURM 100**

**MATH FOR PHARMACOLOGY  
Syllabus**

**Course Description**

This course is primarily designed to prepare students with the definitive mathematical concepts necessary to ensure safe administration of medications. The metric and household systems are reviewed and applied. In addition to mathematical concepts, correlation of pharmacological theory to nursing practice will be emphasized.

**End of Program Student Learning Outcomes**

1. Demonstrate accountability, responsibility and integrity for the delivery of

safe nursing care within legal, ethical and regulatory framework in nursing

practice.

2. Provide safe nursing care utilizing evidence based practice and the nursing process

to minimize risk or harm across the lifespan.

3. Provide education to individuals and families related to promotion,

maintenance, restoration of health and caring throughout the lifespan.

4. Collaborate with interdisciplinary healthcare team members to facilitate

optimal patient outcomes by incorporating quality initiatives in all settings

5. Demonstrate effective communication with patients, families, peers and

members of the interdisciplinary team to promote optimal patient outcomes in

a variety of healthcare environments.

6. Demonstrate sound clinical judgment and reasoning in the delivery of patient

centered care for a diverse patient population.

7. Utilize information technology to communicate, incorporate evidence based

practice, minimize errors, gather data and support decisions for safe patient

care.

**Course Learning Outcomes (CO)**

1. Review and reinforce the mathematical skills needed to succeed in the nursing profession.
2. To relate pharmacological theory to nursing practice.
3. Safely calculate accurate medication calculation for medication administration.
4. Demonstrate the significance of critical thinking in the administration of medications.
5. Utilize principles of safety in administration of medications to all age groups.

**Required Resources**

**Textbooks:**

Gray Morris, Deborah C. (2021). *Calculate with Confidence* (8th ed.). St Louis, Missouri:

Elsevier Inc.

**ATI (Assessment Technology Institute):** Dosage Calculations and Safe Medication Administration Modules. Students who are enrolled in N119 will have access to these modules

**References:** Math Resources on School Website

**Instructional Methods**

Asynchronous online, Exams and Review of Exams

Required readings

Assignments

Face-to face tutoring by appointment

**Mode of Delivery**

Virtual

Face-to face tutoring by appointment

**Americans with Disabilities Act Guidelines**

Refer to the policy outlined in the school handbook

**Classroom Policy**

Our policy is to have a respectful, positive learning and work environment that includes clear communication and teamwork. All students must abide by school academic, behavior, and professionalism policies as written in the student handbook which is printed and online on the school website.

**Grade Components and Values**

**Grade Point Value**

|  |  |  |
| --- | --- | --- |
| **Method of Evaluation** | **Number** | **Percentage** |
| Pretest |  | 5% |
| Exam 1 |  | 30% |
| Exam 2 |  | 30% |
| Final Exam |  | 35% |
| **Total:** |  | **100%** |

Note: A minimum passing grade of C (70%) is   
required for successful completion of the course.

**EXAMINATIONS**

Students are responsible for maintaining and applying knowledge from previously completed courses. Students are responsible for both new and previously learned subject matter up to the date of each exam. This means that students may be tested on all previously learned content as the student advances through the course and from semester to semester. The final exam is cumulative for the semester.

Completion and submission of all Canvas Modules Assignments will earn a total of 1 point to be added to the final grade. Omission of any modules will not earn any points.

**Technical Requirements for Course**

**Recommended Computers:**

* Mac (OS® 10.13 or later version)
* PC (Dell, Intel, HP, etc.)

**Required software**

* Microsoft Office 2016 or higher.

**Recommended Web Browsers:**

* Mozilla Firefox v20.0 or higher
* Google Chrome v25.0 or higher Plug-ins:
  + Java Script Enabled & Third-Party Cookies Enabled
* Firefox current version
* Internet Explorer current version (edge not fully supported)
* Safari current version (Mac only)

**Windows:**

Operating System: 32-bit and 64-bit Versions of Windows 10

**Alternate versions of Windows 10 (such as Windows RT and Windows 10 S are not supported at this time)**

Only genuine US-English versions of Windows Operating systems are supported

**Examplify** must be installed using an Administrator account on Windows 10

(open settings app>go to accounts>Family & other people>change account type)

**Camera Resolution**

* 800 x 600 resolution or better

**Computer Requirements**:

* Operating systems of MAC OSX 10.9 Lion or higher/ Windows 7, 8 or higher (if using another operating system, such as Linux, make sure it is equal to—or better than—the given operating systems)
* Ram: 2 GB or better
* CPU Processor: Dual-core 2.4 Ghz CPU or better
* Speed-2mbps upload speed or greater

Other:

* Screen resolution of 1024x 768 or higher
* JavaScript and cookies must be enabled within the browser.
* Some content may be accessible by disabling the pop-up blocker.

**Internet Connection**

* Connection needed for download, registration, exam download and upload
* Cable modem, DSL or better (300 kbps download, 250 kbps upload)

**Other Required Items:**

* **WEBCAM required 320x240 VGA** resolution
* **Microphone** - Independent (i.e. not connected to headphones)
* Working Keyboard
* Mouse
* Monitor (if you are using a desktop computer)

**Review:**

Chapter 1: Roman Numerals

Chapter 2: Fractions

Chapter 3: Decimals

Chapter 4: Ratio & Proportion

Chapter 5: Percentage

**Topic Outline**

Chapter 6: Metric System

Chapter 7: Apothecary and Household Systems

Chapter 9: Additional Conversions

Chapter 11: Understanding and Interpreting Medication Orders

Chapter 12: Ratio and Proportion

Chapter 13: Reading Medication Labels

Chapter 16: Dosage Calculation using the Dimensional Analysis method

Chapter 17: Oral Medications

Chapter 18: Parenteral Medications

Chapter 19: Reconstitution of Solutions

Chapter 21: Intravenous Solutions and Equipment

Chapter 22: Intravenous Calculations

Chapter 23: Heparin Calculation

Chapter 25: Pediatric and Adult Dosage Calculations Based on Weight

**NURM100 Course Outline**

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| --- | --- | --- | --- |
| **Topics** | **Student Learning Activities** | **Assignment Activity** | **Hours** |
| **Week 1 (CO: 1-5)** | | |  |
| **Review Syllabus, Abbreviations, Unit, Percentage**  **Pre Test** | **Abbreviation list**  **Chapter 1 & 2, 3, 4, 5** | **Student to review:**  **Fractions**  **Decimals**  **Percentage**  **PowerPoint in Module section to assist to review**  **Complete assignments in module labelled preschool semester work** | **Theory**  **1** |
| **Week 2 ( CO: 1-5)** | | |  |
| **Theory:**  **Review Test**  **Metric/International System** | **Reading: Chapter 6 & 7** | **Assignments:**  **Posted assignments in canvas**  **ATI: Dosage Calculation Modules:**  **Medication Administration: Clock, Units of measurement, Simple converting and Rounding rules** | **Theory**  **1** |
| **Week 3 (CO: 1-5)** | | |  |
| **Theory:**  **Milliequivalent, Ratio, and Household Measures**  **Dosage Calculations:**  **Focus is on Dimensional Analysis**  **Oral Medication Labels** | **Reading**:  **Chapter 8, 9 (p 115-116), 11 (p 152-156), & 16**  **Chapter 13** | **Assignments:**  **Look over Dimensional Analysis**  **Complete problems in the chapter or choice.**  **ATI: Dosage Calculations Module: Oral** | **Theory**  **1** |
| **Week 4 (CO: 1-5)** | | |  |
| **Theory:**  **Oral Medication Labels and Dosage Calculation** | **Readings**  **Chapter17** | **Assignments:**  **Posted assignments in Canvas** | **Theory**  **1** |
| **Week 5 (CO: 1-5)** | | |  |
| **Theory:**  **Hypodermic Syringe Measurement** | **Readings:**  **Chapter 18** | **Assignments:**  **Posted assignments in Canvas**  **Review for EXAM # 1**  **ATI: dosage Calculation: Injectable** | **Theory**  **1** |
| **Week 6 (CO: 1-5)** | | |  |
| **Theory:**  **EXAM # 1**  **abbreviations, conversions and dosage calculation** | **Readings**  **Chapters: 1, 2, 3, 4, 5, 6, 7, 8, 9, 16, 17** | **Assignments:**  **EXAM #1** | **Theory**  **1** |
| **Week 7 (CO: 1-5)** | | |  |
| **Reconstitution of Powdered Drugs** | **Chapter 19** | **Assignment:**  **Posted assignments in Canvas**  **ATI: Dosage Calculation Module: Powered Medications** | **Theory**  **1** |
| **Week 8 (CO: 1-5)** | | |  |
| **Theory:**  **Adult and Pediatric Dosages Based on Body Weight** | **Reading**:  **Chapters 25** | **Posted assignments in Canvas** | **Theory**  **1** |
| **Week 9 (CO: 1-5)** | | |  |
| **Theory:**  **Finish up to exam content: injections, reconstitution, dose on wt.**  **Review Exam content** | **Reading**: | **Assignment**  **EXAM #2: WORKSHEET TO REVIEW FOR EXAM** | **Theory**  **1** |
| **Week 10 (CO: 1-5)** | | |  |
| **Theory:**  **EXAM # 2** | **Reading**:  **All content from 1st exam and chapters 18, 19, 25** | **Assignments:**  **EXAM # 2** | **Theory**  **1** |
| **Week 11 (CO: 1-5)** | | |  |
| **Introduction to IV Therapy, IV Flow Rate Calculation** | **Readings:**  **Chapter: 21 & 22** | **Assignments:**  **Posted assignments in Canvas**  **ATI: IV medication** | **Theory**  **1** |
| **Week 12: (CO: 1-5)** | | |  |
| **Theory:**  **Calculating IV infusion and completion times** | **Readings:**  **Chapter 21, 22, 9**  **(p 119)** | **Assignments:**  **Posted assignments in Canvas** | **Theory**  **1** |
| **Week 13 (CO: 1-5)** | | |  |
| **Theory:**  **Heparin infusion calculations** | **Reading**:  **Chapter 23** | **Assignments:**  **Posted assignments in Canvas**  **FINAL EXAM: REVIEW WORKSHEET** | **Theory**  **1** |
| **Week 14 (CO: 1-5)** | | |  |
| **Theory:**  **REVIEW ALL** | **Reading**: | **Assignments:**  **Practice Online ATI Assessment: Dosage Calculation  RN Adult Medical/Surgical online practice** | **Theory** |
| **Week 15 (CO: 1-5)** | | |  |
| **MONDAY: MAY 8th**  **Final Exam: all course content covered (comprehensive)** | **Reading**: | **Assignments:** | **Total Theory Hours**  **14** |

***The course syllabus is a general plan for the course; deviations may be necessary and will be announced. Individual instructor information is to be distributed at the beginning of the course.***

# MIDDLE STATES ASSESSMENT:

|  |  |  |
| --- | --- | --- |
| **NURM 100**  **Math for Pharmacology** | **Student Learning-Course**  **Outcomes** | **Assessment of Outcomes** |
| Reinforce and reinforce the mathematical skills needed to succeed in the nursing profession. | See Course Objectives 1-7 | Written: Quiz, exams, in-class assignments, homework.  Verbal: group discussions, film  critique, demonstrations in lab |
| To relate pharmacological theory to nursing practice. | See Course Objective 1-7 | Written: Quiz, exams, in-class assignments, homework.  Verbal: group discussions, film critique, demonstrations in the  lab |
| Safely calculate accurate medication calculation for medication administration. | See Course Objectives 1-7 | Written: Quiz, exams, in-class assignments, homework.  Verbal: group discussions, film  critique, demonstrations in the lab |
| Demonstrate the significance of critical thinking in the administration of medications. | See Course Objectives 1-7 | Written: Quiz, exams, in-class assignments, homework.  Verbal: group discussions, film  critique, demonstrations in lab |
| Utilize principles of safety in administration of medications to all age groups. | See Course Objectives 1-7 | Written: Quiz, exams, in-class assignments, homework.  Verbal: group discussions, film  critique, demonstrations in lab |