ARNOLD & MARIE SCHWARTZ COLLEGE OF PHARMACY
AND HEALTH SCIENCES

Long Island University

Course Syllabus
Division of Pharmacy Practice

PH 655: Medication Safety
Course Date:

Course Faculty:
Dr. Muhammad H. Islam
Director, Department of Patient Safety, SUNY Downstate Medical Center
Clinical Assistant Professor, Arnold & Marie Schwartz College of Pharmacy and Health Sciences, Long Island University

Revision: December 2007
I. Course Name:
Medication Safety

II. Course Number:
PH 655

III. Course Credit:
Five (5) credits, off campus

IV. Course Faculty:
Dr. Muhammad H. Islam
Director, Department of Patient Safety, SUNY Downstate Medical Center
Clinical Assistant Professor, Arnold & Marie Schwartz College of Pharmacy and Health Sciences, Long Island University

V. Course Rationale:
A “medication error” may be defined as any preventable event that may cause or lead to inappropriate medication usage and patient harm while the medication is in the control of a health care professional, patient, or consumer. Such events may be related to professional practice, health care products, procedures and systems including prescribing, order communication, product labeling, packaging and nomenclature, compounding, dispensing, distribution, administration, education monitoring and usage.

Preventing medication errors is about the courage and intellectual curiosity of individuals, who have cared enough to count, catalogue, harvest, and share; that don’t accept errors as inevitabilities and believe that improved systems and individual caregiver support can produce safer patient care. The identification and recognition of medication errors is a ringing symbol of a new willingness to tell the truth- to begin educating the public about the significant imperfections in patient care and engaging patients and their families in becoming part of the solution. Pharmacists and student pharmacists need to recalibrate public expectations and expectations of themselves and then set and achieve ambitious improvement goals over time.

The term “medication safety” can describe a project that provides health care professionals with a systematic assessment of their clinical practices in relation to the safe use of medications. Medication safety, combined with focused education sessions, shares best practices and helps health professionals understand the gaps in the current medication use system. It identifies problems in the medication use system, provides an opportunity to analyze the assessment and goes on to pinpoint potential areas for improvement via various means including education sessions that share best practices and the ways that they can be implemented.

The key component of medication safety deals with the identification of and prevention of medication errors. This covers multiple aspects of medication practice and other factors that influence it, including organizational culture, communication within and across institutional departments, specific technologies used to prescribe, dispense, deliver, and monitor medication usage, and the strategies pursued by the leadership to promote a culture of safety. Pharmacists and student pharmacists need to develop an understanding and practical experience in all of these areas.
VI. **Course Overview:**
This selective advanced pharmacy practice experience (APPE) provides opportunities for the student to learn and participate alongside various persons responsible for improving medication safety in the hospital/medical center. These persons may include the director of medication safety, the director of pharmacy, and other administrative and clinical personnel. Students will have an opportunity to learn about different types of medication errors, factors that contribute to those errors, the severity of the errors, and the steps that go into their prevention. Students also will gain experience in collecting data on medication errors, analyzing the findings, communicating with other health care professionals and administrators through a reporting mechanism, and tracking and trending an area of failure and success. Students will share the information obtained through various means such as a hospital-wide performance improvement initiative. Students may also have the opportunity to attend pharmacy and therapeutics committee meetings, interdepartmental performance improvement meetings, and monthly hospital-wide medication error rate reporting discussions.

VII. **Course Time Commitments:**
Students are required to be at the site eight hours per day, five days per week, for total of five weeks.

**Homework/Assignment Hours:** Approximately 4 (four) hours per week, for a total of 20 hours.

VIII. **Prerequisite Courses:**
Sixth year standing

IX. **Prerequisite Knowledge:**
Principles of:
Critical thinking
Communication skills
Drug information source retrieval and utilization
Drug literature evaluation
Ability to use basic functions on a computer
Basic statistics

X. **Attendance Policy:**
Attendance is mandatory. All missed hours must be made up at the discretion of the preceptor and the coordinator. Students must notify the preceptor and the course coordinator before the clerkship session begins on the day of the absence, and provide acceptable proof (e.g., a medical note) to explain the absence.

XI. **Policy Concerning Students with Special Needs:**
If there is any student who believes that he or she may need an accommodation for any type of disability, the student should contact the course coordinator as soon as possible.

XII. **Required Texts/Other Resources:**
Short, white laboratory coat
New York State Pharmacy Intern Permit
Pharmacy intern name tag
XIII. This Course Will Assist the Student in Meeting the Following Curricular Endpoints:

- **A1a.** Gather and organize accurate and comprehensive patient information to identify ongoing or potential drug therapy problems.
- **A1b.** Interpret and evaluate patient and drug-related data needed to identify actual or potential drug therapy problems.
- **B2a.** Identify and report medication errors and adverse drug reactions to appropriate individuals and organizations.
- **B2b.** Evaluate information obtained from adverse drug reaction and medication error reporting systems to identify preventable causes.
- **B2c.** Recommend and implement actions to minimize the occurrence of adverse drug reactions and medication errors in a healthcare system.
- **B2d.** Apply population-specific data and quality improvement strategies to develop policies that minimize drug misadventure (including medication errors, overdose, and poisoning).
- **B2e.** Participate as part of a multidisciplinary team in the pharmaceutical care system’s process for conducting medication use evaluations.
- **D1.** Communicate and collaborate with patients, caregivers, physicians, nurses, other health care providers, policy makers, members of the community and administrative and support personnel to engender a team approach to patient care.
- **D2.** Retrieve, analyze, and interpret the professional, lay, and scientific literature to provide drug information and counseling to patients, their families or caregivers, as well as other health care providers.
- **D3.** Demonstrate expertise in informatics.
- **D4.** Carry out duties in accordance with legal, ethical, social, economic, and professional guidelines.
- **D4a.** Evaluate and resolve ethical dilemmas that arise in practice and find a solution that is acceptable to all parties involved.
- **D5.** Maintain professional competence by identifying and analyzing emerging issues, products, and services.

XIV. This Course Will Assist the Student in Meeting the Following Course-specific Endpoints:

- Obtain necessary information from the patient, caregiver, and/or other members of the healthcare team. (A1a)
- Identify relevant information in the patient profile or medical record (A1a)
- Interview the patient and caregiver employing effective communication strategies. (A1a)
- Protect the confidentiality of patient information. (D4)
- Assess any patient history of allergies and intolerances. (A1b)
- Identify the cause and significance of adverse drug effects. (A1b)
- Effectively communicate research findings at appropriate levels for patients and healthcare professionals. (A1e, A1f, D1)
- Identify, evaluate, and regularly use a variety of information resources, including those intended for lay people and those written for healthcare professionals and including reference books, full text databases, websites, and primary literature. (D2, D3)
- Identify and minimize or avoid drug interactions, adverse effects, and contraindications associated with recommended drug therapy. (A1g)
• Monitor patient-specific subjective and objective parameters for drug efficacy and toxicity. (A1g)
• Anticipate, monitor for, and report adverse effects and drug interactions. (A1g)
• Assess the health needs of a specific patient population by analyzing epidemiologic data and identifying risk factors that would adversely affect patient health. (C1a, C1d)
• Communicate clearly, accurately, compassionately, confidently, and persuasively with patients, caregivers, other health care professionals, and the public using appropriate listening, verbal, nonverbal, and written communication skills. (D1)
• Establish a collaborative relationship with other healthcare professionals that foster a team approach to patient care. (B2e)
• Accept feedback and implement suggestions for improvement. (D5)
• Manage time appropriately and efficiently. (D5)
• Exhibit intellectual curiosity to ensure ongoing professional competency. (D5)

XV. Course-specific Learning/Behavioral Objectives:
After completion of this selective course, the student will have developed a broad knowledge base and practical experience in medication use and policy development on safe medication practices. In addition, the student will have developed the skills to assess, manage, minimize, prevent, and report medication errors and adverse drug events. The student will develop the skills to work with other health-care disciplines, solve practice problems efficiently, and communicate effectively with others.

Learning/Behavior Objectives:

I. Creating a strategic plan for medication safety:
• Collect, analyze and publish data dealing with medication safety
• Select the changes in the process that need to be made
• Implement the strategic plan
• Monitor performance

II. Involvement:
• If possible, observe/participate a pharmacy and therapeutics committee meeting and inter-departmental performance improvement meetings
• Participate in a system-based adverse drug event reporting program

XVI. Map of Curricular Endpoints to Assessments:
Curricular Endpoints for Assessment Tools I, II, and III

<table>
<thead>
<tr>
<th></th>
<th>I</th>
<th>II</th>
<th>III</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1a</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>A1b</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>B2a</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>B2b</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>B2c</td>
<td>X</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>B2d</td>
<td>X</td>
<td>X</td>
<td></td>
</tr>
</tbody>
</table>
XVII. **Grading Policy:**
Course grades will be based upon student’s daily performance as well as completion of assignments throughout the rotation. Formal feedback will be provided midway through the rotation and any time as deemed necessary by the preceptor. At the end of the rotation, students will receive a final course grade and written evaluation from the preceptor. For those students electing to receive a letter grade, the following table depicts the point totals associated with each specific grade:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>89.5-100</td>
</tr>
<tr>
<td>A-</td>
<td>86.5-&lt;89.5</td>
</tr>
<tr>
<td>B+</td>
<td>82.5-&lt;86.5</td>
</tr>
<tr>
<td>B</td>
<td>79.5-&lt;82.5</td>
</tr>
<tr>
<td>B-</td>
<td>76.5-&lt;79.5</td>
</tr>
<tr>
<td>C+</td>
<td>72.5-&lt;76.5</td>
</tr>
<tr>
<td>C</td>
<td>69.5-&lt;72.5</td>
</tr>
<tr>
<td>C-</td>
<td>66.5-&lt;69.5</td>
</tr>
<tr>
<td>D</td>
<td>59.5-&lt;66.5</td>
</tr>
<tr>
<td>F</td>
<td>&lt;59.5</td>
</tr>
</tbody>
</table>

XVIII. **Course Assessment:**
Course grades will be based upon the following:

- Data collection, analysis, and reporting to various persons 30%
- Case presentation on an adverse drug reaction 30%
- Medication error case presentation at a Performance Improvement Meeting 30%
- Reliability, professionalism, and motivation 10%

XIX. **Professional Behavior Expectations:**
A. **Dress Code:**
   Students’ must be appropriately dressed. This means:
   - Identifying badges (intern badge and hospital ID)
   - Appropriate and conservative dress
   - Ties for men
   - No shorts, jeans, sneakers or open toe shoes for men or women
   - Comfortable walking shoes are suggested

   Provisions will be made at the site for storage of coats, briefcases, pocketbooks, etc. However, it is suggested that valuables not be taken to the site.
B. Rules & Regulations at the Site:
Will be explained by the preceptor

C. Confidentiality:
Patient profiles and records are private and legal documents. Although these documents are used and handled in the course work, confidentiality is a must. Patient confidentiality is to be strictly enforced in accordance with HIPAA regulations. Students may need to complete site-specific HIPAA training before beginning this advanced practice experience.

D. Professional Behavior:
Plagiarism, cheating and other professional misconduct, as deemed by the preceptor, may result in dismissal from the course and/or disciplinary action by the College.

XX. Course activities:
- Collect and eventually analyze data dealing with medication errors. Items to note include the following: the type of medication error, factors contributing to the error, hospital service (for example, medicine, surgery, pediatrics) using the appropriate assessment form.
- Collect adverse reaction data using the assessment form noted.
- Deliver an oral presentation dealing with a medication error report.
- Deliver an oral presentation dealing with an adverse drug reaction.
Please assess the pharmacy student using the key below, by writing the number that best describes his/her performance for this activity.

<table>
<thead>
<tr>
<th>Poor / Unsatisfactory</th>
<th>Needs Improvement</th>
<th>Average</th>
<th>Above Average</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 59</td>
<td>60 – 66</td>
<td>67 – 76</td>
<td>77 – 86</td>
<td>87 – 100</td>
</tr>
</tbody>
</table>

**I. Collection of data on the types of medication errors (e.g., omission, wrong dose, wrong drug, wrong rate etc.)**

1. Identify types of medication errors from the incorrect and incomplete medication order
2. Collect data on types of medication errors from each services (e.g., wrong dose from medicine unit NS 61)
3. Analyze the data on types of medication errors

Subtotal: Average of Score x 0.30

**II. Collection of data of contributing factors to the medication errors (e.g., patient’s allergy history or duration of dose missing etc.)**

1. Determine contributing factors from the incomplete and incorrect medication order
2. Collect data on contributing factors of medication errors from each wrong medication order from each services
3. Analyze the data on contributing factors of medication errors

Subtotal: Average of Score x 0.4

**III. Monitoring of Therapy**

1. Determine the probable outcome from all the medication errors (e.g., A to I, ‘A’ meaning circumstances or events that have the capacity to cause error and ‘I’ meaning an error occurred that may resulted in patient’s death)
2. Collect data on outcome of medication errors from each services
3. Analyze the data on outcome of medication errors

Subtotal: Average of Score x 0.3

Total I + II + III = __________

Final Score: __________

Preceptor’s Signature: ________________________________
Arnold & Marie Schwartz College of Pharmacy and Health Sciences
Long Island University
PH 655 - Medication Safety
Student Evaluation Form – Medication Error Case Presentation

Student:_____________________________ Student ID #:__________________

Site:_____________________________ Preceptor:______________________ Date:___________

Please assess the pharmacy student using the key below, by writing the number that best describes his/her performance for this activity.

<table>
<thead>
<tr>
<th>Poor / Unsatisfactory</th>
<th>Needs Improvement</th>
<th>Average</th>
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<td>87 - 100</td>
</tr>
</tbody>
</table>

I. Identify the types, contributing factors and outcome of medication errors

<table>
<thead>
<tr>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Identifies the types, contributing factors and outcome of medication errors from incomplete and incorrect medication orders</td>
</tr>
<tr>
<td>2. Data collection on types, contributing factors and outcome of medication errors</td>
</tr>
<tr>
<td>3. Analysis of data</td>
</tr>
</tbody>
</table>

Subtotal: Average of Score $\times 0.30$

II. Evaluate the data by comparison (e.g, same types of errors from one service to other services etc.)

<table>
<thead>
<tr>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Presenting a graphic evaluation on findings</td>
</tr>
<tr>
<td>2. Identify the area of concentration for improvement</td>
</tr>
</tbody>
</table>

Subtotal: Average of Score $\times 0.30$

III. Reporting of one service (e.g, medicine service etc.)

<table>
<thead>
<tr>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Build a report on the medication errors for the service by types, contributing factors and outcome</td>
</tr>
<tr>
<td>2. Suggest the scope of improvement</td>
</tr>
</tbody>
</table>

Subtotal: Average of Score $\times 0.40$

Total I + II + III = ________
Final Score: ________
Preceptor’s Signature: ________________________________________________
Arnold & Marie Schwartz College of Pharmacy and Health Sciences, LIU
PH 655 - Medication Safety
Adverse Drug Reaction Classification Form

Student:______________________________________ Student ID #:__________________
Site:____________________________ Preceptor:______________________ Date:___________

Patient Initials: __________ Date of Admission: ______ Discharge Date: ______ Age: ______ Sex: M F Service__________

Ia. IMPLICATED MEDICATION: ____________________________ Ib. REACTION (describe): ____________________________

II. REPORTING MECHANISM: How was this reaction reported (check one): ______ Medical records ______ Spontaneous

III. OCCURRENCE LOCATION: When did the reaction occur? (Check one): ______ Prior to hospitalization ______ During hospitalization

IVa. PROBABILITY SCORING (record the assigned values in the SCORE KNOW column based on the answers to each of the questions below):

1. EXPERIENCE: Are there previous conclusive reports on this reaction +1 0 0 ______
2. TEMPORAL SEQUENCE: Did the adverse event appear after the suspected drug was administered? +2 -1 0 ______
3. DECHALLENGE: Did the adverse reaction improve when either the drug was discontinued or a specific antagonist was administered? +1 0 0 ______
4. RECHALLENGE: Did the adverse reaction reappear when the drug was readministered? +2 -1 0 ______
5. ALTERNATIVE ETIOLOGIES: Is there an alternative cause (other than the implicated drug) that could have caused the reaction on its own? -1 +2 0 ______
6. PLACEBO: Did the reaction reappear when a placebo was given? -1 +1 0 ______
7. LEVELS: Was the drug detected in the blood (or other fluids) in a concentration known to be toxic? +1 0 0 ______
8. DOSE: Was the reaction more severe when the dose was increased or less severe when the dose was decreased? +1 0 0 ______
9. HISTORY: Did the patient have a similar reaction to the same or similar drug(s) in any previous exposure? +1 0 0 ______
10. OTHER: did any objective evidence confirm the adverse event? +1 0 0 ______

IVb. PROBABILITY CLASSIFICATION: (check one based on the total score above):

V. SEVERITY CLASSIFICATION (check one)

FATAL: Directly or indirectly contributes to the death of the patient
SEVERE: Potentially life threatening causing permanent injury or requiring intensive medical care
MODERATE: Required a change in drug therapy, treatment, or prolongation of hospital stay of at least one day
MILD: No antidote, therapy, or prolongation of hospital stay required
Doubtful: LEAF 
Possible: 1 – 4
Probable: 5 – 8
Definite: ≥ 9
Arnold & Marie Schwartz College of Pharmacy and Health Sciences
Long Island University

PH 655 – Medication Safety

**Interim Student Assessment Form**

Student: __________________________________________ Identification #: ______________

Site: ___________________________ Preceptor: ___________________ Date: ________

1. Data collection, analysis and reporting to various level _____ (30%)

2. One case presentation on adverse drug reaction _____ (30%)

3. Medication errors report presentation of one service to the P. I meeting _____ (30%)

4. Reliability, professionalism, and motivation _____ (10%)

**Total Points** _____ (100%)

Comments: ____________________________________________________________________
_____________________________________________________________________________

Preceptor's Signature: ____________________________ Date: ______________
Arnold & Marie Schwartz College of Pharmacy and Health Sciences
Long Island University

PH 655 – Medication Safety

Final Student Assessment Form

Student: __________________________________________ Identification #: __________

Site: ________________________________ Preceptor: ___________________ Date: ________

1. Data collection, analysis and reporting to various level _____ (30%)

2. One case presentation on adverse drug reaction _____ (30%)

3. Medication errors report presentation of one service to the P. I meeting _____ (30%)

4. Reliability, professionalism, and motivation _____ (10%)

Total Points _____ (100%)

Comments: __________________________________________________
_____________________________________________________________________________

Final Grade: __________

Preceptor's Signature: __________________________ Date: _______________