PHRD 5033: Renal/Urology Module

I. Contact Information

Course Coordinators

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Course Instructors

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II. Course Prerequisites/Corequisites
PHRD 5010

III. Course Description
Principles of pathophysiology, pharmacology, medicinal chemistry, clinical pharmacokinetics and pharmacotherapy (including both prescription and non-prescription medications) as they apply to renal and urology drug therapy management.

IV. Curricular Objectives and Outcomes

- Provide Comprehensive Patient Specific Pharmaceutical Care.
  1. Evaluate the appropriateness of a given prescription or medication order based on patient and disease-specific factors.
  2. Evaluate each patient for self-treatment or referral.
  3. Develop and implement an evidence-based care plan. (pharmacology, medicinal chemistry, physiology, pathology, etc.)
  4. Compound and/or dispense the most optimal formulation for drug delivery consistent with the patient needs and in harmony with the law.

- Think Critically.
  24. Identify, retrieve, understand, analyze, synthesize, and evaluate information needed to make informed, rational, and ethical decisions.
  25. Solve complex problems that require an integration of one’s ideas and values within a context of scientific, social, cultural, legal, clinical, and ethical issues.
  26. Display habits, attitudes, and values associated with mature critical thinking
• **Demonstrate Appropriate Interpersonal, Professional, and Ethical Behaviors.**

27. Maintain professional competence.
28. Represent the profession in an ethical manner.
29. Identify, analyze, and resolve ethical problems involved in pharmacy practice.

33. Accept the responsibilities embodied in the principles of pharmaceutical care.
34. Demonstrate appropriate interpersonal, intergroup, and cross-cultural behaviors that promote respect and trust from peers, patients, and community members.

V. **Course Specific Objectives and Outcomes**

- Understand the pharmacology of drugs used in the treatment of chronic kidney disease, metabolism of calcium and phosphorus in renal failure, major stages of renal failure, pharmacology of drugs used in kidney transplant.
- Understand the pathophysiology of overactive bladder and the pharmacology of drugs used in the treatment of overactive bladder.
- Identify structures of drug molecules, knowledge of receptors and possible binding site.
- Understand the structure-pharmacological activity and identify the functional groups responsible for activity and solubility.
- Understand the possible biotransformations, metabolic products and their implications in activity and toxicity.
- Identify the structures of tracer, imaging agents and their physico-chemical properties and intended uses.
- Define primary acid-base disturbances within the human body.
- Apply simple formulas to determine the etiology of simple acid-base disturbances.
- Integrate the supplemental concepts of the anion gap and the excess gap to help assess complex acid-base disturbances.
- Discuss the most common causes of each primary acid-base irregularity.
- Determine the appropriate management for patients with acid-base disorders.
- Estimate renal clearance using common equations.
- Estimate drug removal by hemodialysis.
- Describe interventions to prevent drug-induced renal disease.
- Recognize risk factors and clinical presentation for the main types of urinary incontinence.
- Identify medications that can cause or worsen urinary incontinence.
- Describe pharmacologic and non-pharmacologic treatment options for the main types of urinary incontinence.
- Develop an appropriate treatment and monitoring plan and provide patient counseling information based on patient-specific information for a patient with urinary incontinence.
- Identify common laboratory tests used when interpreting renal function.
- Discuss laboratory evidence indicating renal dysfunction and associated diseases.
- Recognize risk factors for CKD.
- Identify stages of CKD.
- Recall management strategies used to slow progression of CKD.
- Interpret causes and identify treatments of CKD complications.
- Recognize renal replacement therapy strategies.
- List complications of RRT and recall treatment strategies for those complications.
- Discuss the definitions of AKI.
- Interpret RIFLE and AKIN criteria.
- Differentiate the 3 types of AKI using clinical picture and lab values.
- Identify signs and symptoms of electrolyte abnormalities including sodium, potassium, magnesium, calcium and phosphorus
- Recognize clinical manifestations of electrolyte disorders

VI. Course Topics
Topics include: Nephrology Lab Interpretation, Fluid and electrolytes, Acid/Base Balance, Acute Kidney Injury, Chronic Kidney Disease, Dialysis and Renal Dosing, Drug-Induced Renal Failure, BPH, Erectile Dysfunction, Urinary Incontinence.

VII. Instructional Methods and Activities
Instructional methods may include: traditional lectures, internet-based lectures with in-class discussion, distance learning, in-class discussion of patient cases, small group discussion, problem-based learning, case-based learning, and individual projects. Quizzes or other graded in-class exercises may also be administered.

VIII. Evaluation and Grade Assignment
- There will be three examinations, each encompassing new material and may include comprehensive material as necessary.
- Quizzes will be given, announced or unannounced, as deemed necessary by each faculty member.
- All exams will be two-hour exams.
- Exam dates are scheduled in the course syllabus and will only be changed in the event of University closure.
- Exams may be multiple choice, fill in the blank, short-answer, case or scenario based discussion, essay, or any other format deemed necessary by the lecturers and course coordinator.
- Information acquired from previous lectures in the course and from other courses in the professional pharmacy curriculum may be needed in preparing for these examinations.
- Exams will cover material (readings, outside assignments) not covered in class.

Acceptable exam behavior:
- Only a writing instrument and calculator should be at your desk. All book bags and other bags should be left at the front of the room.
- ExamSoft will be used to administer exams; therefore, all students are required to have access to the most current version of the software.
- Cell phones should be turned off and left with your belongings in the front of the room.
- Students will not be allowed to leave the room to go to the restroom during the exam, unless accompanied by a faculty member of the same sex, provided there is another proctor to remain in the room.
- Use of programmable calculators will not be allowed during quizzes or exams.
- In the event that a question is eliminated from an exam after it has been printed, the exam will be graded based on the remaining number of questions and adjusted to represent correct number of points. For example, on a 100 point exam if one 2 point question is eliminated, the exam will now be worth 98 points, not 100 points. No credit will be given for the eliminated question.
- Students wishing to challenge a question on the test must provide the course coordinator with a written (email preferred) statement that identifies which question(s) being challenged, why the student feels his or her answer(s) is/are correct and references from recent (published within the last 1-2 years) primary or
tertiary literature to support the claim. Problems or issues with question(s) should be first directed, via e-mail, to the faculty member who presented the material. The course coordinator should be copied on this communication. In the event that the faculty member and the student cannot arrive at an acceptable conclusion, the course coordinator should be contacted regarding the issue. Discussion of a dispute will occur only after a written query is submitted. Challenges of test questions will only be considered within 2 weeks of when the test scores are posted.

- Individual test grades for the course will be based strictly upon these percentages.

<table>
<thead>
<tr>
<th>Assessment method</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examinations</td>
<td></td>
</tr>
<tr>
<td>Exam #1</td>
<td>60</td>
</tr>
<tr>
<td>Exam #2</td>
<td>100</td>
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<tr>
<td>Exam #3</td>
<td>80</td>
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<tr>
<td>Total class points</td>
<td>240</td>
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</tbody>
</table>

Grading Scale (based upon total number of points for semester):
90.0 – 100% A
80.0 – 89.9% B
70.0 - 79.9% C
60.0 – 69.9% D
<60.0% F

Undergraduate mid-term grades will be posted on-line for students to view via Arrow. Mid-term grades indicate a student’s status at mid-semester only and do not indicate the final performance outcome of a student.

IX. Class Policies and Procedures

At a minimum, all policies stated in the current ULM Student Policy Manual & Organizational Handbook should be followed (see http://www.ulm.edu/studentpolicy/).

Additional class policies include:

A. Textbook(s) and Materials:
   i. Required

   ii. Recommended:

   iii. Additional reading materials may be posted by course faculty.

B. Attendance Policy:
Class attendance is required. Class attendance is regarded as an obligation as well as a privilege, and students are expected to know attendance regulations and to attend regularly and punctually at classes in which they are enrolled. Failure to do so: (1) may prevent access to the classroom during regularly scheduled times; (2) may jeopardize a student’s scholastic standing; and (3) may lead to suspension from the college or University. Students shall submit excuses for all class absences to the professor within three class days after returning to classes. Professors shall accept an official University excuse. With the following exceptions professors are to determine whether absences are excused or unexcused: 1) Absences arising from authorized trips away from the University or from special duties at the University shall be excused. 2) Absences arising from a student’s confinement in a hospital or other in-patient facility or doctor’s excused absences shall be excused. Students are responsible for verifying this information to the faculty. 3) Absences arising from a death in the immediate family shall be excused. The immediate family is defined as spouse, child, step-child, mother, father, sister, brother, grandmother, grandfather, step-mother, step-father, step-brother, step-sister, aunt, uncle, mother-in-law or father-in-law.

C. Make-up Policy:
Each student is expected to attend each exam at the date and time specified. If a student cannot attend an exam due to valid University excuse, he/she must speak directly with the course coordinator, as soon as possible. The course coordinator must be notified prior to an examination if a student misses an exam. The ULM COP Excused Absence Policy must be followed. Please refer to the official document for details. In case of emergency, the course coordinator must be notified within 48 hours of the emergency. Failure to do so will result in a zero (0) grade for that exam. Make-up exams will be prepared at the same or higher level than the original exam. The format of the make-up exam may be written or oral. Failure to attend a scheduled make-up exam will result in a zero (0) grade for that exam. Students missing an exam due to a University approved excuse will take the make-up exam during the week of finals, or as determined by the course coordinator.

D. Academic Integrity: Faculty and students must observe the ULM published policy on Academic Dishonesty (see the ULM Student Policy Manual - http://www.ulm.edu/studentpolicy/). All professional students will adhere to the standards set forth in the College of Pharmacy’s Code of Conduct. http://www.ulm.edu/pharmacy/student/copcodeofconduct.pdf

Cheating, plagiarism, or other inappropriate conduct will not be tolerated. Academic cheating includes but is not limited to the accomplishment or attempted accomplishment of the following:

1. Copying or obtaining information from another student's test paper.*
2. Using, during a test, materials not authorized by the person giving the test.**
3. Collaborating, conspiring, or cooperating during an in-class or take-home test with any other person by giving or receiving information without authority.
4. Stealing, buying, or otherwise obtaining all or part of an unadministered test.
5. Selling or giving away all or part of an unadministered test or any information concerning specific questions and items on an unadministered test.
6. Requesting, bribing, blackmailing, or in any other way causing any other person to obtain an unadministered test or information about an unadministered test or a test in the process of being administered.
7. Substituting for another student, or permitting any other person to substitute for oneself to take a test.
8. Submitting as one's own, in fulfillment of academic requirements, any work prepared totally or in part by another person.
9. Any selling, giving, or otherwise supplying to another student for use in fulfilling academic requirements any work.
10. Submitting artificially produced data or information in the place of descriptive, experimental, or survey results.
11. Any other devious means of securing an unearned grade in a non-credit course or in a course offered for credit.
12. Using, during a test, any electronic storage device, wireless and/or internet-based technology, or any other means that provides information not authorized for use during the testing period.

*A student looking on another student's paper is considered cheating.

**The presence on one's person (or in close proximity thereto) of a condensation of test information which could be regarded as a "cheat sheet" will be considered adequate evidence to establish cheating.

Plagiarism is the use of any other person's work (such work need not be copyrighted) and the unacknowledged incorporation of that work in one's own work offered for credit.

Censures (Penalties)
Academic dishonesty will result in a referral to Committee on Ethical and Professional Standards with a recommendation for a grade of “F” for the course and expulsion from the College. Academic dishonesty includes but is not limited to the use of information taken from others work or ideas, the provision of help to others on non-collaborative evaluations (tests, quizzes, etc.), collaboration on take home exams, or the use of unapproved information or electronic devices to assist in obtaining an answer to the question.

E. Course Evaluation Policy: At a minimum, students are expected to complete the on-line course evaluation. It is requested that they also complete the School of Pharmacy course and instructor evaluations, including providing comments. In addition, individual feedback is encouraged throughout the course.

F. Student Services: If you are having problems with emotional, social, and/or behavioral issues please call any of the mental health clinics on the ULM campus to make an appointment. All services are free to ULM students, staff, and faculty, and are strictly confidential.
   • SOP Office of Student and Professional Affairs: 342-3800
   • ULM Counseling Center: 342-5220
   • Marriage and Family Therapy Clinic: 342-5678
   • Community Counseling Center: 342-1263
   • ULM HELPS (Helping Educators and Learners Prevent Suicide) Project Office: 342-1335

G. Emergency Procedures:
Please review the emergency escape plan in the classrooms and hallways of the Bienville building. Move quickly and orderly to the appropriate stairwell and exit the building. The
meeting place for this class will be the far end of the north parking lot between Bienville and Broadmoor Blvd. Under no circumstances is the elevator to be used for emergency evacuation. Any student needing assistance should notify the professor immediately. For emergencies, to contact University Police, call 1-911 from landlines and 342-5350 from cell phones.

H. Discipline/Course Specific Policies: Students are responsible for all course information on Moodle and/or instructor websites. They are expected to check these sources regularly to access class materials, required readings, assignments, and other information necessary to excel in this course.

X. Class Schedule
*The instructor reserves the right to adjust schedule as needed*

Schedule: Friday 8:00 - 9:50 am

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Faculty</th>
<th>New Drugs</th>
<th>Exam Points</th>
</tr>
</thead>
</table>
| 1/22/2016 | Nephrology and Urology Pharmacology and Medicinal Chemistry | Jackson/Jois | Cinecalct  
Mycofenolate  
Azathioprine  
Contrast agents  
Phenoxybenzamine  
Doxazosin  
Terazosin  
Tamsulosin  
Alfuzosin  
Silodosin  
Sildenafil  
Tadalafil  
Vardenafil  
Yohimbine  
Oxybutynin  
Tolterodine  
Feosoterodine  
Solifenacin  
Darifenacin | 20 pts |
<p>| 1/29/2016 | Clinical Interpretation of Nephrology Labs | Storer      |                                                | 20 pts |
| 2/5/2016  | Acute Kidney Injury                        | Storer      |                                                | 20 pts |
| 2/12/2016 | Test 1                                     |            | Questions should be submitted by 2/5/16       |            |</p>
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Instructor</th>
<th>Points</th>
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<tbody>
<tr>
<td>2/19/2016</td>
<td>Chronic Kidney Disease</td>
<td>Storer</td>
<td>20 pts</td>
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<tr>
<td>2/26/2016</td>
<td>Chronic Kidney Disease</td>
<td>Storer</td>
<td>20 pts</td>
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<tr>
<td>3/4/2016</td>
<td>Dialysis and Renal Dosing</td>
<td>Brady</td>
<td>20 pts</td>
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<tr>
<td>3/11/2016</td>
<td>Fluid and Electrolytes</td>
<td>Storer</td>
<td>20 pts</td>
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<td>3/18/2016</td>
<td>Fluid and Electrolytes</td>
<td>Storer</td>
<td>20 pts</td>
</tr>
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<td>3/25/2016</td>
<td>Spring Break</td>
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<td>4/1/2016</td>
<td>Spring Break</td>
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<td>4/8/2016</td>
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<td>4/15/2016</td>
<td>Drug-induced Renal Failure</td>
<td>Brady</td>
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<tr>
<td>4/22/2016</td>
<td>Acid/Base Balance</td>
<td>Manor</td>
<td>20 pts</td>
</tr>
<tr>
<td>4/29/2016</td>
<td>Urinary Incontinence</td>
<td>J Smith</td>
<td>20 pts</td>
</tr>
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<td>5/6/2016</td>
<td>BPH and Erectile Dysfunction</td>
<td>Caldwell</td>
<td>20 pts</td>
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<tr>
<td>5/12/2016</td>
<td>Final Exam</td>
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Questions should be submitted by 3/25/16

Storer- 80 pts
Brady- 20 pts

Questions should be submitted by 5/6/2016

Brady- 20 pts
Manor- 20 pts
J Smith- 20 pts
Caldwell- 20 pts