TEXAS A&M UNIVERSITY-CORPUS CHRISTI
Clinical Laboratory Science Program

Course Number & Section: BIMS 3102-101
Class Meeting Time: T 8.00-10.50 AM
Location: CS 231

Instructor: Dr. Felix Omoruyi
Office: Center for Sciences 130B
Hours: M – 12:00 - 1:00 PM
W – 12:00 – 2:00 PM
R – 2:00 – 4:00 PM

Fall 2013
Office Tel.: 825-2473

BIMS 3102: ESSENTIALS FOR CLS LAB
FALL 2013 SYLLABUS

COURSE DESCRIPTION
This course consist of studies of general laboratory techniques and procedures, laboratory safety and regulations, professional ethics, phlebotomy technique, microscopy and chemical examination of urine and body fluids.

LEARNING OUTCOMES
The student will be able:
- to acquire and demonstrate skills in collection of blood samples by venipuncture or capillary techniques
- to describe and develop appreciation of professional responsibility and medical ethics
- to recognize normal and abnormal findings in the physical, microscopic and chemical examination of urine and other body fluids
- to correlate urine and body fluid results with the patient’s condition
- to develop an understanding of safety measures and regulations in hospital setting
- to demonstrate proper use and care of laboratory water, balances, pipettes, glassware, and dispensers
- to discuss the procedures and documentation for quality control for specimens, methodology, reagents, control materials, instrumentation, and reporting of results

TEXT AND MATERIALS


Disposable lab coats, gloves, and goggles will be provided for you and are required for all labs. You will not be permitted to work in the lab without these items. You will also need a scientific calculator and a black Sharpie marker.
**EVALUATION:**
Examination average (2 exams) 40%
Laboratory average 20%
Attendance 10%
Final examination 30%

**GRADES**
You are expected to read the material that corresponds to the objectives as they are covered. Mastering course objectives will require that you have read the material. All questions are keyed to the specific course and lab objectives. Use these objectives to study.

There is no provision for making up late work and/or missed exams or quizzes. A grade of zero will be entered for any late or missed exam, lab, quiz or practical due to an unexcused absence. The only excused absences are personal illness, immediate family medical emergency or immediate family funeral.

The following scale will be used to report grades:

- A 90 - 100
- B 80 - 89
- C 70 - 79
- D 60 - 69
- F below 60

**ATTENDANCE**
- Mandatory Laboratory Safety Briefings are scheduled outside of the regularly scheduled lab time. You must attend and complete one of the Lab Safety Briefings to be admitted into your lab.
- Students who register late must make up any work they have missed during the first week.
- Class attendance is expected and if absent, you will be responsible for knowing the covered material and making up the lab exercise if possible. Any lab worksheets are to be turned in the week following the assignment and must be turned in at the beginning of the lab period. Late labs will be docked 10% for not being turned in during the first part of the lab and 10% for every day past the due date. If you miss the lab, you may still turn in the worksheet for partial credit (50%)
- In the case of an extreme emergency causing an absence on major exam days, evidence that the absence was necessary will be required.

**ACADEMIC HONESTY**
As stated in the University catalog, "University students are expected to conduct themselves in accordance with the highest standards of academic honesty." Therefore, cheating will not be tolerated and will result in a failing grade for the course and possible further disciplinary action by the university.
DISABILITY AND VETERANS' SERVICES
Texas A&M University-Corpus Christi is committed to providing persons with disabilities an equal opportunity to access campus facilities, resources and programs. The ADA is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation for their disabilities. Support and accommodations are also available for returning veterans who experience cognitive and/or physical access issues in the classroom or on campus. Our Office of Disability Services arranges such support and academic accommodations. To make a request, or for more information, call (361) 825-5816 or visit the office in Driftwood 101. It is important to contact the Office of Disability Services in a timely fashion as it will take time for them to review requests and prepare accommodations and accommodation letters.

GRADE APPEALS
As stated in the Texas A&M University-Corpus Christi University Rules and Procedures (Section B [Academic Program], Part 13 [Students]: 13.02.99.C2 [Student Grade Appeals] and 13.02.99C2.01 [Student Grade Appeal Procedures]), a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is on the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, consult the University Rules and Procedures specified above (accessible through the University Rules and Procedures website at http://www.tamucc.edu/provost/university_rules/index.html). For assistance and/or guidance in the grade appeal process, students may contact the Office of Student Affairs.
<table>
<thead>
<tr>
<th>Date</th>
<th>Week</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuesday</td>
<td>Sept. 10</td>
<td>Introduction and Laboratory Safety</td>
</tr>
<tr>
<td>Tuesday</td>
<td>Oct. 01</td>
<td>Phlebotomy Techniques</td>
</tr>
<tr>
<td>Tuesday</td>
<td>Oct. 08</td>
<td><strong>EXAM 1</strong></td>
</tr>
<tr>
<td>Tuesday</td>
<td>Oct. 15</td>
<td>UA Physical and Microscopy</td>
</tr>
<tr>
<td>Tuesday</td>
<td>Oct. 22</td>
<td>UA Chemical and Microscopy</td>
</tr>
<tr>
<td>Tuesday</td>
<td>Oct. 29</td>
<td>UA Chemical and Microscopy</td>
</tr>
<tr>
<td>Tuesday</td>
<td>Nov. 05</td>
<td>UA Chemical and Microscopy</td>
</tr>
<tr>
<td>Tuesday</td>
<td>Nov. 12</td>
<td><strong>EXAM 2</strong></td>
</tr>
<tr>
<td>Tuesday</td>
<td>Nov. 19</td>
<td>Point of Care Testing</td>
</tr>
<tr>
<td>Tuesday</td>
<td>Nov. 26</td>
<td>UA Drug Monitoring</td>
</tr>
<tr>
<td>Tuesday</td>
<td>Dec. 03</td>
<td>Case Studies</td>
</tr>
<tr>
<td>Tuesday</td>
<td>Dec. 10</td>
<td><strong>Case Studies - Final</strong></td>
</tr>
</tbody>
</table>

**General Disclaimer:**
The instructor reserves the right to modify the schedule when necessary. These changes will be announced during regularly scheduled lecture periods. In case of absence during this announcement, it is the responsibility of the student to obtain the information as no effort will be made to contact students who were absent when the announcement was made.
Lab 1: Introduction and Laboratory Safety
1. State proper laboratory safety regulations or considerations relative to each of the following:
   a. warning signs
   b. labeling
   c. flammable
   d. fires
   e. biohazardous materials
   f. hepatitis
   g. radiation

Lab 2: Glassware and Resources
1. Identify each of the following types of pipets and describe the proper use of each type:
   a. volumetric
   b. serological
   c. micropipets
2. Describe the proper technique for use of automatic pipets.
3. Explain the difference between TD and TC as applied to volumetric measurements.

Lab 3: Phlebotomy Equipment
1. List and describe the assembly and handling of phlebotomy equipment.
2. Discuss the order of draw of tubes when using an evacuated tub system.
3. Assemble the proper equipment for a venipuncture and a capillary puncture.
4. Practice the proper application of the tourniquet on the practice arm.
5. Discuss ways of dealing with difficult patients and difficult situations that may be encountered in collecting blood from patients.

Lab 4: Phlebotomy Techniques
1. Assemble the proper equipment for a venipuncture.
2. Practice the proper application of the tourniquet on a ‘real’ arm.
3. Perform a correct venipuncture on a human subject.
4. Perform a correct fingerstick on a human subject.
5. Perform the proper technique for holding a heel for capillary puncture.

Lab 5: UA Physical and Microscopy
1. Describe the appearance and discuss the significance of amorphous phosphates and amorphous urates in freshly voided urine.
2. Define specific gravity and explain why this measurement is significant in a routine urinalysis.
3. Perform several specific gravity measurements using a refractometer.
4. Perform several microscopic identifications of epithelial cells, wbc's and rbc's.
5. Identify artifacts in the urine.
Lab 6: UA Chemical and Microscopy
1. Describe and identify normal and abnormal formed elements in urinary sediments.
2. Prepare urines for microscopy through centrifugation.
3. Correlate physical and chemical urinalysis results with microscopic observations.
4. Differentiate between red blood cells and yeast cells.
5. Identify crystals found in the urine and state their significance.

Lab 7: UA Chemical and Microscopy
1. Describe and perform proper technique for performing chemical tests on urine by reagent strip and give possible errors if this technique is not followed.
2. Perform quality control procedures routinely performed with reagent strip testing.
3. Discuss causes of premature deterioration of reagent strips and state how to avoid them.
4. Prepare quality control material properly.
5. Prepare normal and abnormal urines for microscopy, perform chemical testing, and read microscopics.
6. Discuss the principle of each reagent strip test.

Labs 8 & 9: UA Chemical and Point-of-Care Testing
1. Prepare normal and abnormal urines for microscopy, perform chemical testing, and read microscopics.
2. Perform routine UA quality control.
3. Perform and interpret an Ictotest for detection of urine bilirubin.
4. Perform and interpret a sulfosalicylic acid test for protein.
5. Perform and interpret a Clinitest for detection of reducing sugars.
6. Perform and interpret an Acetest for the presence of ketones in urine.
7. Perform procedures for point of care testing for glucose.
8. Perform and interpret quality control procedures on point of care instrument.
9. Correlate results with clinical findings of patient.

Lab 10: UA Drug Monitoring
1. Perform routine procedures for chemical examination of urine with quality control.
2. Perform color inspection of urine and other physical characteristics.
3. Perform procedure for positive identification of urine drugs.
4. Discuss importance of chain of custody and professionalism involved in urine drug testing.

Labs 11 & 12: Case Studies
1. Correlate physical and chemical urinalysis results with microscopic observations and correlate results with clinical data on patients.
2. Correlate different body fluid results with clinical conditions in patients.
3. Differentiate between normal and abnormal cells and correlate the presence or absence of cells with clinical conditions in patients.