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 2014
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BIMS 3102: ESSENTIALS FOR CLS LAB
FALL 2014 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.
ACADEMIC INTEGRITY/PLAGIARISM
University students are expected to conduct themselves in accordance with the highest standards of academic honesty. Academic misconduct for which a student is subject to penalty includes all forms of cheating, such as illicit possession of examinations or examination materials, falsification, forgery, complicity or plagiarism. (Plagiarism is the presentation of the work of another as one’s own work.) In this class, academic misconduct or complicity in an act of academic misconduct on an assignment or test will result in a failing grade.

DROPPING A CLASS
I hope that you never find it necessary to drop this or any other class. However, events can sometimes occur that make dropping a course necessary or wise. Please consult with me before you decide to drop to be sure it is the best thing to do. Should dropping the course be the best course of action, you must initiate the process to drop the course by going to the Student Services Center and filling out a course drop form. Just stopping attendance and participation WILL NOT automatically result in your being dropped from the class. June 20, 2014 is the last day to drop a class with an automatic grade of “W” this term.

CLASSROOM/PROFESSIONAL BEHAVIOR
Texas A&M University-Corpus Christi, as an academic community, requires that each individual respect the needs of others to study and learn in a peaceful atmosphere. Under Article III of the Student Code of Conduct, classroom behavior that interferes with either (a) the instructor’s ability to conduct the class or (b) the ability of other students to profit from the instructional program may be considered a breach of the peace and is subject to disciplinary sanction outlined in article VII of the Student Code of Conduct. Students engaging in unacceptable behavior may be instructed to leave the classroom. This prohibition applies to all instructional forums, including classrooms, electronic classrooms, labs, discussion groups, field trips, etc.

STATEMENT OF CIVILITY
Texas A&M University-Corpus Christi has a diverse student population that represents the population of the state. Our goal is to provide you with a high quality educational experience that is free from repression. You are responsible for following the rules of the University, city, state and federal government. We expect that you will behave in a manner that is dignified, respectful and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

COURSE EVALUATION:
 Examination average (2 exams)  40%
 Laboratory average  20%
 Attendance  10%
 Final examination (comprehensive)  30%

100%

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:

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<th>Grade</th>
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<td>A</td>
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<td>B</td>
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<td>C</td>
<td>70 - 79</td>
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<td>D</td>
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<td>below 60</td>
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**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.

**Unannounced quizzes may be given throughout the course of the semester.**
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 or quiz due to an unexcused absence. The only **excused** absences are personal illness, immediate family medical emergency or immediate family funeral.

**ATTENDANCE**
Students are expected to attend all lectures. If you know in advance that you will miss an exam due to official University business, you must provide the Professor with official documentation of the absence at least fourteen days prior to missing. It is the student’s responsibility to obtain official documentation in timely fashion. Once the documentation has been verified, the Professor will decide how to handle the absence. In the overwhelming majority of cases, assignments and exams will be turned in or completed prior to the planned, official absence. Exams given outside regularly scheduled times may vary in format and content at the discretion of the faculty member. Absolutely nothing may be turned in late by anyone for any reason.

**DISABILITIES ACCOMMODATIONS**
The Americans with Disabilities Act (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 of their disabilities. If you believe you have a disability requiring an accommodation, please call or visit Disability Services at (361) 825-5816 in Corpus Christi Hall 116.

If you are a returning veteran and are experiencing cognitive and/or physical access issues in the classroom or on campus, please contact the Disability Services office for assistance at (361) 825-5816.
GRADE APPEALS
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 on the process, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, consult Texas A&M University-Corpus Christi University Procedure 13.02.99.C2.01 Student Grade Appeal Procedures (http://www.tamucc.edu/provost/university_rules/index.html), and the College of Science and Engineering Grade Appeals webpage (http://sci.tamucc.edu/students/GradeAppeal.html). For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school or the College of Science and Engineering Dean’s Office.
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<th>Tuesday</th>
<th>Sept. 02</th>
<th>Introduction and Laboratory Safety</th>
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<td>09</td>
<td>Glassware and Resources</td>
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<td>Phlebotomy Equipment</td>
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<th>Phlebotomy Techniques</th>
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<td>Tuesday</td>
<td>30</td>
<td><strong>EXAM 1</strong></td>
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<td>Tuesday</td>
<td>Oct. 07</td>
<td>UA Physical and Microscopy</td>
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<td><strong>EXAM 2</strong></td>
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<th>Tuesday</th>
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<td>Dec 02</td>
<td><strong>Case Studies - Final</strong></td>
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**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.