

SPRINGFIELD TECHNICAL COMMUNITY COLLEGE

**ACADEMIC AFFAIRS**

Course Number: CLLS 202	Department: Clinical Lab Science
Course Title: Urinalysis and Body Fluids	Semester: Spring Year: 2013

**COMPETENCIES/OBJECTIVES**

<b>Competencies</b>	<b>Course Objectives</b>
<ol style="list-style-type: none"><li>1. Student will apply all safety protocols, universal precautions when practicing laboratory skills. (Re: CLLS 103)</li><li>2. Students will have a working knowledge of quality control procedures in the laboratory</li><li>3. Students will understand the procedures involve in proper specimen collection and handling of urine specimens.</li><li>4. Student will demonstrate knowledge of the components and function of the renal system.</li></ol>	<ul style="list-style-type: none"><li>▪ Practice all safety protocols and apply universal precautions when performing laboratory skills in the student laboratory and on clinical affiliation.</li><li>▪ Discuss the procedures and documentation for quality control of urinary specimens, reagents, control material, instrumentation, equipment and reporting of results.</li><li>▪ Identify proper collection of urine and different types of specimens.</li><li>▪ List the basic rules for specimen handling and explain the importance of each.</li><li>▪ Identify methods of urine preservation and describe the purpose of each.</li><li>▪ List correct procedure for collection of timed urine specimens.</li><li>▪ Identify and state the function of the basic structures of the kidneys</li><li>▪ Diagram the structure of the nephron</li><li>▪ Describe the function of the urinary system</li><li>▪ Explain the flow through the kidneys and what happens at each point in relation to water and salt.</li><li>▪ Describe the formation and constitution of urine.</li><li>▪ Recognize normal and abnormal daily urine volume.</li></ul>

Competencies	Course Objectives
<p>5. Student will comprehend the components and principles employed in the physical, chemical and microscopic portions of the urinalysis test.</p>	<ul style="list-style-type: none"> <li>▪ List the functions of the kidneys</li> <li>▪ Define renal threshold</li> <li>▪ State the purpose of the Renin-angiotensin-aldosterone system</li> <li>▪ Characterize renal disorders as glomerular, tubular, interstitial, vascular, or other</li> <li>▪ List the types of glomerular diseases, ex. chronic, acute, autoimmune</li> <li>▪ List the types of tubular diseases, ex acute ischemic or toxic and dysfunction</li> <li>▪ Define <i>Nephrotic Syndrome</i> and list symptoms associated with this disease</li> <li>▪ Evaluate laboratory results for renal diseases</li>   <li>▪ List common terminology describing the physical characteristics of urine and the significance of each.</li> <li>▪ Define specific gravity, state the principle of each measurement procedure and the significance.</li> <li>▪ Define osmolality and describe the procedure for measurement in the laboratory</li> <li>▪ Describe the principle of each chemical test on urine including: reagents needed, proper technique, chemical reaction possible errors and quality control.</li> <li>▪ List possible cause for false positives and negatives when performing urinary chemical tests.</li> <li>▪ Describe the appropriate confirmatory tests to be performed subsequent to abnormal findings on the dipstick including test principle and limitations.</li> <li>▪ Explain the importance of standardization of testing and list some of the ways it is accomplished in microscopy</li> <li>▪ List staining techniques available and what they are used to visualize</li> </ul>

<b>Competencies</b>	<b>Course Objectives</b>
<p>6. Student will understand the principles and properly performance of complete urinalysis testing.</p> <p>7. Student will comprehend the collection, analysis and clinical significance of fecal matter.</p>	<ul style="list-style-type: none"> <li>▪ Describe other types of microscopy besides bright field microscopy and list their used</li> <li>▪ Define cytocentrifugation as list its uses</li> <li>▪ Describe proper preparation of urine sediment.</li> <li>▪ List and describe normal and abnormal formed elements found in urinary sediments.</li> <li>▪ Correlate normal and pathological states associated with the various physical, chemical and microscopic findings</li>   <li>▪ Demonstrate the ability to perform all parts of the urinalysis test including physical exam, chemical analysis using dipsticks, manual and automated reads, and microscopic examination in the student laboratory</li>   <li>• Describe the collection procedure for fecal analysis.</li> <li>• List the stains used in the Fecal WBC exam and the disease states it helps to diagnose</li> <li>• Compare and contrast the various tests for carbohydrate testing on stool samples</li> <li>• State the principle of the occult blood, reagents used, procedure and clinical significance.</li> <li>• Discuss steatorrhea and the fecal fat test.</li> </ul>

<b>Competencies</b>	<b>Course Objectives</b>
<p>8. Student will comprehend the formation, collection, analysis and clinical significance of reproductive fluids.</p> <ul style="list-style-type: none"><li>• Vaginal fluids</li><li>• Seminal fluid</li><li>• Amniotic fluid</li></ul>	<ul style="list-style-type: none"><li>▪ List the common laboratory testing performed on Vaginal fluids</li><li>▪ Define “Clue cell” and discriminate in the lab versus a normal epithelial cell</li><li>▪ Explain the used of KOH in vaginal testing</li><li>▪ Discuss the formation and composition of seminal fluid.</li><li>▪ Describe the physical, chemical and cellular characteristics of normal seminal fluid.</li><li>▪ Describe the principles and procedures used in routine analysis of seminal fluid including; volume, viscosity, pH, sperm count, motility and morphology.</li><li>▪ Correlate abnormal findings with clinical conditions</li><li>▪ List the functions of amniotic fluid and describe the normal composition.</li><li>▪ Explain L/S ratio and the significance in relationship to fetal maturity.</li><li>▪ Interpret Liley Graph as it relates to severity of symptoms in the infant</li><li>▪ Describe procedures and principles used in amniotic fluid analysis</li></ul>
<p>9. Student will comprehend the formation, function, analysis and clinical significance of cerebral spinal fluid.</p>	<ul style="list-style-type: none"><li>▪ Describe the anatomy of the Central nervous system and the formation of CSF.</li><li>▪ List the major function of CSF.</li><li>▪ Describe the appearance of normal and abnormal CSF and the significance of each abnormal appearance.</li><li>▪ Describe the appropriate collection of CSF.</li><li>▪ List the testing routinely performed on CSF</li><li>▪ Correlate abnormal findings with clinical conditions</li></ul>
<p>9.</p>	

<b>Competencies</b>	<b>Course Objectives</b>
<p>10. Student will comprehend the formation, analysis and clinical significance of synovial fluid.</p> <p>11. Student will comprehend the formation, analysis and clinical significance of serous fluid (Pleural, Pericardial and Peritoneal).</p>	<ul style="list-style-type: none"><li>▪ Discuss the formation, function and composition of synovial fluid.</li><li>▪ Describe the principles and procedures used in routine analysis of synovial fluid including: physical analysis, cell counts and identification, culture and sensitivity and crystal formation.</li><li>▪ Correlate abnormal findings with clinical conditions.</li> <li>▪ Define serous fluids formation, function and normal composition.</li><li>▪ Name the type of fluid that comes from each specific body site as well as the name of the procedure to extract each type of fluid</li><li>▪ Describe the principles and procedures used in the routine analysis of serous fluids.</li><li>▪ Correlate abnormal findings with clinical conditions.</li></ul>

<b>Competencies</b>	<b>Course Objectives</b>
<p>12. Students will adhere to all affective behavioral objectives.</p>	<ol style="list-style-type: none"> <li><b>1. Safety</b> <ol style="list-style-type: none"> <li>a. Comply with all established laboratory safety regulations including:               <ol style="list-style-type: none"> <li>i. Standard precautions including PPE use and handwashing.</li> <li>ii. Practice proper handling and disposal of biohazardous materials.</li> <li>iii. Proper handling and disposal of sharps.</li> <li>iv. Exercise proper safety practices when using all laboratory equipment, reagents and chemicals.</li> </ol> </li> <li>b. Comply with established departmental dress code.</li> </ol> </li> <li><b>2. Work Practices and Organization</b> <ol style="list-style-type: none"> <li>a. Adhere to department attendance policies by arrive to lecture/ laboratory at the expected time, as denoted in the course syllabus.</li> <li>b. Follow all written instructions.</li> <li>c. Actively listen to verbal instructions.</li> <li>d. Ask quality questions (clarifying, analytical and related to task).</li> <li>e. Submit neat, legible, organized and complete assignments.</li> <li>f. Demonstrate effective time management and complete all tasks within the assignment time frame.</li> <li>g. Keep all laboratory work areas neat, clean and in order.</li> <li>h. Properly care for and use all laboratory equipment.</li> <li>i. Achieve competency and independence in performance of all demonstrated lab skills.</li> </ol> </li> <li><b>3. Cooperation and Teamwork</b> <ol style="list-style-type: none"> <li>a. Actively participate in class activities and discussions by:               <ol style="list-style-type: none"> <li>i. Effectively communicating with class members.</li> <li>ii. Showing respect and consideration for other students and instructors.</li> <li>iii. Willing to share ideas and equally contribute to assigned tasks.</li> </ol> </li> <li>b. In laboratory sessions:               <ol style="list-style-type: none"> <li>i. Share resources and equipment.</li> <li>ii. Work cooperatively by adjusting work style and speed.</li> <li>iii. Discuss equitable task allocation and organization prior to performing.</li> </ol> </li> </ol> </li> </ol>

<b>Competencies</b>	<b>Course Objectives</b>
	<p><b>4. Ethics and Professionalism</b></p> <ul style="list-style-type: none"><li>a. Respond maturely to constructive criticism and instruction and make appropriate modifications.</li><li>b. Seek advice when necessary, admitting limitations when appropriate.</li><li>c. Recognize and admitting errors.</li><li>d. Maintain patient confidentiality according to HIPPA regulations.</li><li>e. Communicate using appropriate terminology and professional procedures.</li><li>f. Display calm demeanor in all circumstances and maintain work quality under stress.</li></ul>