CAMPBELLSVILLE UNIVERSITY

COURSE SYLLABUS

PLEASE TYPE. DATE January 17, 2017

ACADEMIC UNIT Natural Science FACULTY Elizabeth Kay Sutton

☐ Please check to indicate this course has a service learning component.

Discipline	Course# Section	Title of Course	Credit Hours	Cross Reference (if applicable)
CHE	103-91	Introduction to Chemistry Lab	1	

TEXTBOOK ☑ Required ☐ Not Required

Author Chemical Education Resources Title Lab Separates in Chemistry

Publisher Cengage Date of Publication 2005

WORKBOOK

Author _____ Title _____

Publisher _____ Date of Publication _____

PLEASE ANSWER THE FOLLOWING QUESTIONS ON A SEPARATE SHEET OF PAPER AND ATTACH TO THIS FORM.

1. DESCRIPTION OF COURSE: Develop a brief description of the course as it will appear in the Catalog.
2. STUDENT LEARNING OBJECTIVES: List the student learning objectives for the course. Please relate these objectives to the mission and goals of the University and the Academic Unit. For general education courses, please indicate which student learning objectives address general education goals and the intended method of assessment. A minimum of four of the seven general education goals must be included.

   Example: Students will demonstrate their ability to compare and contrast two types of basket weaving. (Goal: Oral and Written Communication; Evidence: research paper and class presentation)
3. COURSE OUTLINE: Outline the topics/units that are to be taught.
4. EVALUATION: How do you plan to determine the grade in the course? Please include grading scale.
5. REQUIREMENTS:
   a. Examinations: State when tests are to be administered, including unit, mid-term, and final examinations.
   b. Reports: How many, length required, and what type (Oral, term and/or research, book critiques).
   c. Supplemental reading assignments or outside work required.
   d. Supplemental instruction aids: Audio visual aids, field trips, guest speakers, etc.
6. BOOKLIST

DEAN Michael K. Page Date Copy Received 1/18/2017

VICE PRESIDENT FOR ACADEMIC AFFAIRS Date Copy Received _____

CAMPBELLSVILLE UNIVERSITY
NATURAL SCIENCE DIVISION
COURSE SYLLABUS

E.K. Sutton
SSC 206
Spring 2017
Office Hours: As posted

I. **TITLE: CHE 103 Introductory Chemistry Laboratory**, one credit hour.

II. **COURSE DESCRIPTION:** CHE 103 is an introductory chemistry laboratory course for non-science and first semester nursing and health science students. The course will provide laboratory exercises in methods of measurement, analyzing evidence of chemical reactions, gas laws, solubility and other topics discussed in introductory chemistry and first semester allied health science courses. This course will fulfill Physical Science Lab requirement for Elementary and Middle School Teacher Education. One three-hour laboratory period a week required. **Prerequisite: CHE 100 or CHE 101 (or concurrent enrollment)**

III. **COURSE OBJECTIVES**

A. **General Education Curriculum Objectives (GECO):** (numbered to correspond to the listing in the University catalog)

2. Critical Thinking: Students will demonstrate the ability to think analytically, logically, and scientifically about information.
4. Ethics: Students will demonstrate an understanding of Christian values and ethical standards in order to make mature and informed decisions concerning moral issues.
5. Oral and Written Communication: Students will demonstrate the ability to express ideas, beliefs, and information in an organized, precise, and persuasive manner.
6. Quantitative Literacy: Students will demonstrate the ability to understand and utilize mathematical and/or logical relationships to analyze data, to construct and assess arguments, and to make sound judgments in quantitative situations that arise in daily life.
7. Social Responsibility and Citizenship: Students will demonstrate an understanding of personal and social responsibility in a changing global environment so that students can make contributions to their respective discipline and to society as a whole.

B. **Student Learning Outcomes (SLO):** Learning Outcomes and General Education Curriculum Objectives associated with them.

1. Students should comprehend and use basic chemical principles, terminology, and the uses of scientific technology and their implications. (GECO 6; Evidence: lab reports, quizzes)
2. Students will demonstrate the ability to apply scientific principles and methods to support hypotheses, apply theories to explain past observations and to predict answers to new questions. (GECO 2, 6; Evidence: lab reports, quizzes)
3. Students should be able to form opinions based on sound scientific reasoning (GECO 2; Evidence: lab reports)
4. Students should be able to use mathematical skills in the description of chemical phenomena and understand the critical thinking skills chemists use in problem solving. (GECO 2, 6; Evidence: lab reports)
5. Students should be able to read, understand, and apply scientific information through thinking more critically, discussing more meaningfully, arguing more persuasively, and writing more effectively. (GECO 2,5; Evidence: lab reports)
6. Students will follow ethical practices when conducting research, writing reports, using sources and when working with others. (GECO 4; Evidence: lab reports)
7. Students will develop an awareness of how a basic understanding of chemistry, the proper application of that knowledge, and the interaction between chemistry and other fields of study and careers is important to personal and social issues. (GECO 4, 6, 7; Evidence: lab reports)

C. **Kentucky Teacher Education Standards (KTS):** Kentucky Teacher Standard (KTS) #1 is addressed in this course. Specific content objectives are listed below (see CSO).
   1. KTS#1 Teacher Demonstrates Applied Content Knowledge: The teacher demonstrates a current and sufficient academic knowledge of certified content areas to develop student knowledge and performance in those areas. (Evidence/Assessment: lecture exams, quizzes, homework and written reports)

D. **Program Learning Outcomes (PLO):** There are no specific program learning outcomes in this course. This course is not a requirement/elective in the Chemistry major/minor program.

E. **Course Specific Objectives (CSO):**
   1. Students will demonstrate the ability to use of basic laboratory equipment.
   2. Students will understand basic laboratory techniques and safety procedures.
   3. Students will test for themselves the validity of certain chemical principles discussed during lecture.
   4. Students demonstrate the ability to record careful observations, draw appropriate conclusions and reflect on what they have learned.
   5. Students will be able to work independently and cooperatively in laboratory activities;
   6. Students will communicate the results of laboratory investigations orally and in writing in a thorough and accurate manner.

IV. COURSE OUTLINE

A. Demonstration of Safety Procedures
B. Making and Reporting Basic Measurements
C. Volume Measurement, Mass Measurement and Density
D. Comparison of Physical and Chemical Changes
E. Determination of Empirical Formula
F. Classification and Balancing of Chemical Equations
G. The Gas Laws
H. Solubility and Rate of Solution
I. Colligative Properties
J. Acid-Base Analysis
K. Chemical Equilibrium

V. COURSE EVALUATION

A. **Instructional Strategies:**
   1. Students will learn science by doing science, in this course the science focus is on chemistry. The lab applies the intellectual theory and conceptual understanding of chemistry obtained from the lecture component of the course.
   2. Writing Component: This course will promote student learning by emphasizing writing skills. There will be several writing requirements. These requirements may include short papers, article critiques, journals, portfolios, or other writing assignments.
   3. Critical Thinking, Problem Solving, and Reasoning Skills will be reinforced throughout the study of chemistry and its applications in this course.

B. The following is a breakdown of the course evaluation.
   1. Each laboratory experiment will be completed and graded on a ten-point scale.
   2. On selected experiments, a complete laboratory write-up will be required and grading will consist of a 10-point grade for the experiment with an additional grading for the laboratory write-ups.
   3. Pre-laboratory assignments and/or quizzes will be given to insure that the student has carefully read the assigned laboratory experiment, is aware of necessary safety precautions and can perform any necessary calculations. The standard ten point grading scale will be used in assigning grades.

4. The grade distribution will be as follows:

Formal Lab Report	10%	Weekly Lab Experiments	90%
If, for any reason, you cannot continue to attend this class, be certain you DROP IT OFFICIALLY. Otherwise, you will automatically receive a failing grade for the course.			
Dates to Remember:			
M. L. King Jr. Day -No Class	Jan 16	First bi-term ends	Mar 11
Evening Classses begin	Jan 17	Spring Break-No Classes	Mar 13-17
Day Classes begin	Jan 18	Second bi-term Begins	Mar 20
Last day to add/register for Spring term	Jan 20	Easter Holiday – No Class	Apr 14-17
Last to drop first bi-term class with W	Feb 24	Last day to drop semester class with W	Apr 13
Midterm Week	Mar 6-10	Finals Week	May 8-12

C. **Numbers to Remember:**
   1. **Security Cell Phone: 270-403-3611**
   2. **Security Office Phone: 270-789-5556**
   3. **Natural Science Division Office: 270-789-5065**

VI. **COURSE REQUIREMENTS**

A. ***Attendance***: Each student is expected have punctual attendance at each class meeting. The University Undergraduate Student Attendance Policy will be followed in this course. According to that policy, **ONLY ONE (1) ABSENCE** is allowed because this course meets once a week.

B. ***Safety Rules:*** Students are required to follow the necessary safety precautions at all times while in the laboratory. This includes the wearing of protective eyewear, leather shoes completely covering the feet, clothing from the **neck to below the knee with close fitting sleeves**, and a protective apron. Students without appropriate attire will be sent out of the laboratory to change their footwear and/or whatever does not meet the requirements. ***NO food, drink or chewing gum is allowed in the lab.***

C. ***Pre-lab Assignments:*** The student will read the lab experiment in the manual and complete the pre-lab for the given lab experiment **BEFORE** coming to class. This pre-lab assignment must be completed and turned in **at the beginning** of the laboratory period. If the pre-lab is not complete at the beginning of the laboratory period, the student will receive a score of zero.

D. ***Lab Reports:*** Each experiment must be completed and written up in the appropriate form. Details on the form for the types of lab reports will be given in the first laboratory period. The lab reports are due at the end of the lab period. Failure to submit the lab report on time will result in a loss of points on the report. ***No late lab reports will be accepted.***

E. ***Calculator:*** You will need a calculator that is able to perform the following functions: exponential functions, exponential notation, logarithms, and square roots.

F. ***Teaching methods:*** The instructor will demonstrate important laboratory procedures, safety precautions and a review of necessary calculations at the beginning of the lab period. Students will then work on at their own pace and complete the assigned experiment. The instructor will be available to answer questions throughout the lab period.

G. ***Classroom Behavior:***
   1. Guests are only allowed in class at the discretion of and with prior approval from the instructor.
   2. Electronic recording devices of any kind are not permitted except in special circumstances and with the specific permission of the instructor.
   3. While you are expected to attend and participate in this class, your cell phone, computer, and MP3 players are **not**. Pagers, cell phones, and similar items are disruptive to the entire class and **must be turned off** during class. **The owner of any such device that activates during class will be immediately excused from class and counted as absent for the entire period.**

4. Use of cell phones, computers, and MP3 players during examinations and quizzes will be considered academic dishonesty, which will result in a zero being awarded for the quiz or examination (No exceptions!).
5. Hats and caps are to be removed prior to entering the classroom.
6. Take care of any physiological needs *before* coming into the classroom.
7. Unacceptable student behaviors:
   a. Sleeping during class
   b. Chronic tardiness. Be here ready to learn when class begins.
   c. Reading, studying or working on materials for other classes.
   d. Chatting with your classmates when the instructor or other classmates are speaking.
   e. Prematurely packing up your books and bags before class has been dismissed.

H. ***Academic Misconduct/Integrity***: Students in this course will be working toward mastery of the material to satisfy the course objectives. ***This class is held to an honor system, meaning that cheating, allowing someone to cheat, or failing to report known cases of cheating are all considered academic misconduct.*** Cheating includes, but is not limited to, any attempt to present the work of another as your own; discussing or copying exams, quizzes, or homework with students who have not yet completed them; using "cheat sheets" on exams or quizzes; altering a test for re-grade, plagiarism of primary or secondary sources of information or using programmable calculators to store and/or recall prohibited information for an exam. Any student who refuses to allow a calculator to be inspected by the instructor upon request will not be allowed to use that calculator on the exam/quiz. Be aware that aggressive methods are used to protect the majority of you who are honest. Violations will be dealt with according to the University and Divisional policies. A copy of the Division of Natural Sciences (DNS) policy on Academic Integrity will be available on the course TigerNet page. Please read this policy and take it very seriously. For information about plagiarism and how to avoid it, consult the following website: http://www.indiana.edu/~istd/. Students will be asked to sign an integrity statement on each examination and quiz. The following statement reads as follows:

> "I pledge on my honor that on this assignment/examination/quiz I have neither received nor given nor have I seen any dishonest work.
>
> Signature _____ Date _____"

VII. **BOOK LIST:**

A. **TEXTBOOK:** "CHE 103 Laboratory Separates in Chemistry" by Signature Labs, Cengage Publishing, 2006. Additional experiments will be provided by the instructor.

VIII. **DISABILITIES**

Campbellsville University is committed to reasonable accommodations for students who have documented physical and learning disabilities, as well as medical and emotional conditions. If you have a documented disability or condition of this nature, you may be eligible for disability services. Documentation must be from a licensed professional and current in terms of assessment. Please contact the Coordinator of Disability Services at 270-789-5192 to inquire about services.

IX. **ACADEMIC SUPPORT**

The Academic Support area, located in the Badgett Academic Support Center (BASC), exists to help students. At certain times, most students need some help with studying, choosing a career, major/minor, or assistance in a difficult course. The following services are available Career Services, Disability Services, tutoring, and the Citizens Bank & Trust Writing Center. *These services are provided at no extra cost to the student.* Space

is also available for individual and group study, and laptop computers are available for students to check-out and use within the building. Information about these services is accessible by clicking on the "Current Students" tab on the University website at www.campbellsville.edu. Information is also available by calling the Office of Academic Support at (270) 789-5064.

X. **TITLE IX**

Campbellsville University and its faculty are committed to assuring a safe and productive environment for all students. In order to meet this commitment and to comply with Title IX of the Education Amendments of 1972 and guidance from the Office of Civil Rights, the University requires all responsible employees, which includes faculty members, to report incidents of sexual misconduct shared by students to the University's Title IX Coordinator.

Title IX Coordinator:
Terry VanMeter
1 University Drive
UPO Box 944
Campbellsville, KY 42718

Administration Office 8A
Phone: 270-789-5016
Email: twvanmeter@campbellsville.edu

Information regarding the reporting of sexual violence and the resources that are available to victims of sexual violence is set forth at: www.campbellsville.edu/titleIX

CHE 103 Spring 2017 TENTATIVE COURSE SCHEDULE

WEEK OF		EXPERIMENT
JAN	**17**	**No Lab**
	24	Introduction, Safety, #600 Practicing Safety in the Chemistry Laboratory
	31	#490 Using Exponential Notation & Significant Figures
FEB	7	#601 Introducing Mass and Volume Measurements
	14	#602 Determining Density
	21	#604 Observing Signs of Chemical Reaction
	28	#613 Classifying Some Chemical Reactions
MAR	7	#606 Determining the Empirical Formula of Magnesium Oxide*
	14	***SPRING BREAK– NO CLASS***
	21	#628 Preparing Aspirin
	28	#384 Charles' Law
APR	4	#615 Studying Some Aspects of Solubility
	11	#454 Osmosis and Dialysis
	18	#466 Standardizing a Sodium Hydroxide Solution & Using it to Analyze Vinegar
	25	#616 Introducing Equilibrium
MAY	**2**	**CHECK OUT.**
	9	**FINALS WEEK– No Lab**

*** These lab experiments will be formal write-ups.**

COURSE #: _____ **SEMESTER:** _____

COURSE TITLE: _____

Student's Acceptance of Course Policies

Please fill out and sign the following form and **return it no later than** _____ to the instructor. **Use a blue or black pen (no pencil).**

I, _____, have read the entire syllabus describing the course
(Print your name neatly)

policies for this course, taught by Ms. E. Kay Sutton. I fully understand these policies and I agree to comply with them during the entire _____ term.

Signature: _____ Date: _____