This is a SouthArk Master Syllabus. The course syllabus distributed by the instructor may include additional requirements, must be followed by the student in the given term, and is considered to supersede the Master Syllabus.

Course Number
CHEM 1124/L

Course Title
Chemistry II for Science Majors/Lab

Course Description
Prerequisites: MATH 1023 or its equivalent with a grade of "C" or better, CHEM 1024/l with a grade of "C" or better. Course is a continuation of CHEM 1024/L incorporating critical thinking with a greater emphasis regarding intermolecular forces, solutions, kinetics, equilibrium, acid/base theory, thermodynamics, and electrochemistry. Lab is required. Three hours lecture and two hours laboratory.

College Mission
South Arkansas Community College promotes excellence in learning, teaching, and service; provides lifelong educational opportunities; and serves as a cultural, intellectual, and economic resource for the community.

College Wide Student Learner Outcomes

☒Critical Thinking ☒Responsibility ☒Communication

ACTS Course☒ **Program Course** ☐

ACTS Outcomes

The state requires that we cover certain topics in order to meet the requirements of the Arkansas Course Transfer System. The requirements are stated below.
Upon completion of this course, the student will be able to recognize, discuss, describe, explain, and apply knowledge of the following:

1. Intermolecular forces
2. Properties of solutions
3. Chemical Kinetics
4. Mechanisms of chemical reactions
5. Equilibrium of chemical reactions, including solubility
6. Acid/Base theory
7. Equilibrium of acid/base mixtures, including titration
8. Thermodynamics
9. Oxidation-reduction
10. Electrochemistry

Program Outcomes

Course Learner Outcomes

CLO #	Course Learner Outcomes	Unit Outcomes/ Competencies	ACTS Outcomes	Program Outcomes	Critical Thinking	Communication	Responsibility	Assessment
CLO 1	Differentiate between types of intermolecular forces and the properties influenced by these forces.	Unit I:1	1		CT1			Final Exam
CLO 2	Distinguish between types of solutions, solution properties, and colligative properties influenced by solution formation.	Unit I:2	2		CT1			Final Exam

CLO 3	Differentiate between the various rates of chemical reactions.	Unit II:1	3		CT2			Final Exam
CLO 4	Analyze reaction mechanisms and the influence of catalysts.	Unit II:2	4		CT2			Final Exam
CLO 5	Evaluate equilibrium in chemical reactions and the influence of solubility.	Unit II:3-5 Unit III:3	5		CT2			Final Exam
CLO 6	Analyze acid/base theory.	Unit III:1	6		CT1			Final Exam
CLO 7	Evaluate equilibrium of acid/base mixtures, including titration.	Unit III:2	7		CT2			Final Exam
CLO 8	Distinguish between the thermodynamic laws, entropy, and free energy.	Unit IV:1,2	8		CT2			Final Exam
CLO 9	Analyze oxidation-reduction reactions.	Unit IV:3	9		CT2			Final Exam
CLO10	Incorporate oxidation-reduction concepts to analyze electrochemistry principles.	Unit IV:4	10		CT2			Final Exam
CLO11	Demonstrate competency in the scientific method and chemistry lab techniques by effectively communicating experimental findings in writing.	Units I-IV	1-10		CT4	C1	R2	Final Exam, Laboratory Notebook

Unit Outcomes/ Competencies

Unit I: Intermolecular Forces, Solutions

1. Differentiate between types of intermolecular forces and the properties influenced by these forces.
2. Distinguish between types of solutions, solution properties, and colligative properties influenced by solution formation.

Unit II: Kinetics and Equilibrium

1. Differentiate between the various rates of chemical reactions.
2. Analyze reaction mechanisms and the influence of catalysts.
3. Evaluate equilibrium in chemical reactions.
4. Write equilibrium expressions and perform calculations.
5. Predict changes to equilibrium using La Châtelier's Principle.

Unit III: Acids, Bases, and Equilibrium Concepts in Aqueous Solutions.

- Analyze acid/base theory.
- Evaluate equilibrium of acid/base mixtures, including titration.
- Calculate molar solubility in equilibrium expressions and analyze complex ion equilibria.

Unit IV: Thermodynamics; Oxidation/Reduction; Electrochemistry

1. Distinguish between the thermodynamic laws, entropy, and free energy.
2. Evaluate changes in entropy, equilibrium, and free energy.
3. Analyze oxidation-reduction reactions.
4. Incorporate oxidation-reduction concepts to analyze electrochemistry principles.

Assessment Description(s)

Two embedded questions in the final exam for each outcome. Laboratory reports are evaluated using a standard laboratory rubric.

Materials and Technological Requirements

1. *Chemistry: A Molecular Approach* 2nd Edition, Nivaldo J. Tro. Pearson/Prentice Hall Publishers. ISBN: 978-0321651785.
2. OWLv2 Access Multi-Term (includes eBook for *Chemistry and Chemical Reactivity* 9th Edition, Kotz, et al.) + Ball's Essential Algebra. ISBN: 9781305434202.
3. Student Lab Notebook for Chemistry – Hayden/McNeil. ISBN: 978-1930882232.
4. Visorgogs – Eye protection for the laboratory.

5. Calculator: TI-83, or TI-84. We will use these in CHEM II as well.
6. Reliable computer and internet access for online homework, Blackboard, and Student e-mail, etc. Course announcements and assignments will be posted to Blackboard. Specific student information will be received and sent only through your e-mail account at SouthArk. (If you have technical problems with Blackboard, please contact the Distance Learning Director.)

Class Attendance Policy
Students are expected to attend all classes in which they are enrolled. If a student is absent from a class session, it is the student's responsibility to make arrangements to complete or make up any work missed. No make-up work for missed classes will be allowed without the approval of the instructor. Students who enroll late must assume all responsibility for work missed. Classes not attended as a result of late enrollment may be counted toward excessive absences. Students not attending the entire class period may be counted absent for that period. An instructor may drop students with a grade of "WE" if students have been absent for an excessive number of days. Warning letters will be sent to the students advising them of the consequences of nonattendance and urging them to contact their instructors immediately. Excessive absences are defined as follows:

Regular Semester

Courses which meet once a week	2 absences
Courses that meet twice per week	3 absences
Courses that meet four times per week	5 absences

Summer Session

Courses that meet four times per week in a five week session	3 absences
Courses which meet two evenings per week in a 10 week session	3 absences

Students enrolled in special programs or individualized instruction should contact their program director/instructor regarding specific attendance requirements for the program/course. Some of the selective-admission, health-science programs have specific criteria regarding attendance. Students are encouraged to refer to program policies in these matters.

Jury Duty/Military/Official School Function
Scheduled absences are those that occur due to college-related activities or as a result of summons to jury duty or military duty. Classes missed as a result of scheduled absences will not be counted as excessive absences if the instructor is notified and provided documentation prior to the absence(s). Make-up work for scheduled absences will be at the discretion of the instructor.

In all instances, documentation must be provided to the instructor within 24 hours of receipt. Documentation should come from an appropriate party on letterhead or other official stationery with a signature and contact information. Documentation should list the corresponding dates of the leave.

Medical leave
For medical-related absences, documentation must include written notice from the treating medical professional documenting time needed off related to medical reasons and time student may resume classes. The medical reason does not need to be listed on the documentation; the documentation must include only that there is a medical reason, the amount of time the student needs to be absent, and the time the student should be able to return to classes. Students who elect to work at home while on excused leave must meet with their instructors to make arrangements to do so. Working on coursework while on medical leave is not a requirement but can be requested by students. If students request that they be allowed to work at home while on an excused leave, the instructor will make every reasonable effort to ensure that the student is able to do so.

For students who have a medical condition necessitating time off or accommodation:

1) They may work at home on assignments if they choose to if on medical leave approved by a medical professional
2) Receive appropriate accommodations related to coursework (i.e., excused from labs with potentially harmful chemicals, have a larger desk, etc.)
3) Resume their studies where they left off once they return to classes
4) Be allowed to make up any missed work related to medical leave
5) Receive incompletes on their transcripts until coursework is completed, according to the incomplete grade contract.
6) Be given a reasonable time frame in which to complete missed coursework

Academic Honesty Policy

Students enrolled at South Arkansas Community College are expected at all times to uphold standards of integrity. Students are expected to perform honestly and to work in every way possible to eliminate academic dishonesty. Academic dishonesty includes cheating and plagiarism, which are defined as follows:

- Cheating is an attempt to deceive the instructor in his/her effort to evaluate fairly an academic exercise. Cheating includes copying another student's homework, class work, or required project (in whole or in part) and/or presenting another's work as the student's own. Cheating also includes giving, receiving, offering, and/or soliciting information on a quiz, test, or examination.
- Plagiarism is the copying of any published work such as books, magazines, audiovisual programs, electronic media, and films or copying the theme or manuscript of another student. It is plagiarism when one uses direct quotations without proper credit or when one uses the ideas of another without giving proper credit. When three or more consecutive words are borrowed, the borrowing should be recognized by the use of quotation marks and proper parenthetical and bibliographic notations.

If, upon investigation, the instructor determines that the student is guilty of cheating or plagiarism, the following penalties will apply:

- The student will receive a penalty of no less than a zero on the work in question.
- The instructor will submit a written report of the incident to the Vice President for Learning
- The Vice President for Learning will determine whether further disciplinary action will be taken.
- All decisions may be appealed for review through the college's Academic Appeals procedure.

Equal Opportunity-Affirmative Action Statement
South Arkansas Community College does not discriminate on the basis of age, race, color, creed, gender, religion, marital status, veteran's status, national origin, disability, or sexual orientation in making decisions regarding employment, student admission, or other functions, operations, or activities.

Library Services
Library Homepage: http://southark.libguides.com/homepage Library Contact: LibraryStaff@southark.edu or 870.864.7115

Procedures to Accommodate Students with Disabilities:
If you need reasonable accommodations because of a disability, please report this to the Vice President of Student Services with proper documentation. . VPSS Contact: 870.875.7262

The Early Alert System
In an effort to ensure student retention and success, South Arkansas Community College employs an Early Alert System to identify and support at-risk students as soon as possible in a given semester. The intent of Early Alert is to provide this assistance while there is still time to address behaviors or issues that have the potential of preventing students from completing their courses and degree plans. Students referred through the Early Alert System will be required to work on a corrective action plan with their student advising coach and to include attendance accountability and mandatory academic tutoring either in the academic division or in the Testing and Learning Center (TLC).

Once the Student Advising Coach has met with the referred student, and again when the student has met the prescribed corrective actions, the coach will update the Early Alert System so that the instructor is kept informed of the progress in resolving issues.

Behavioral Review Team
At South Arkansas Community College (SouthArk), we are committed to proactive leadership in student wellbeing and campus safety. By focusing on prevention and early intervention with campus situations that involve any person experiencing distress or engaging in harmful or disruptive behaviors, the BRT will serve as the coordinating hub of existing resources to develop intervention and support strategies and offer case management. Students, faculty, staff, and campus guests are encouraged to report any person on campus who is a concern. BRT Contact: 870.875.7262 BRT@southark.edu

Date of Revision: 8/25/2016