I. Catalog Description
A one-semester survey of the basic concepts of physical chemistry including their application to understanding chemical and physical phenomena. Three hours lecture.

II. Prerequisites
MA-139, CH-271 and PH-120 or 230

III. Purposes or Objectives of the Course
1) This course surveys the essential topics of physical chemistry.
2) Mathematical models for chemical systems are introduced and discussed.
3) Students are introduced to the fundamental concepts of thermodynamics and their relationships to chemical change are explored.

IV. Student Learning Outcomes
1) Students will be able to give examples of the breakdown in classical physics at the atomic scale that led to the creation of quantum theory.
2) Students will be able to derive and apply equations explaining the rate of reactions.
3) Students will be able to apply the Laws of Thermodynamics.
4) Students will be able to derive and apply the laws governing the fundamentals of equilibrium.

V. Textbooks and/or Other Required Materials

VI. Course Content

<table>
<thead>
<tr>
<th>Topic</th>
<th>Time in Covered in Weeks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laws of Thermodynamics</td>
<td>2</td>
</tr>
<tr>
<td>Phase and Chemical Equilibrium</td>
<td>3</td>
</tr>
<tr>
<td>Kinetics</td>
<td>3</td>
</tr>
<tr>
<td>Quantum Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>Molecular Interaction</td>
<td>2</td>
</tr>
<tr>
<td>Spectroscopy</td>
<td>2</td>
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</table>

Signature: ___________________________ Date: __________________________
Chair

Signature: ___________________________ Date: __________________________
Dean
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Materials

Homework/Examinations
Weekly homework assignments will be given throughout the semester. Be sure to read each assignment carefully ahead of time and do not wait to the last minute to start. Homework assignments will be graded. Answer keys will be available after the homework date has passed. Late homework will not be accepted.

Five (5) exams and a comprehensive final examination will be given. All exams are comprehensive, but the material covered since the previous exam will be strongly emphasized on an exam. Exams will cover material covered from the text, discussed during the class periods, assigned homework, and other assigned material. Even material in assigned chapters of the text but not discussed during class periods is subject to examination. Any exceptions will be announced in class. A student who does not show his/her student identification to the instructor when requested during an examination period will not receive a grade for the examination.

Questions Concerning this course
Questions, comments or requests regarding this course or program should be taken to your instructor. Unanswered questions or unresolved issues involving this class may be taken to Dr. Philip Crawford, Chair of the Chemistry Department.

Academic Honesty
Academic honesty is one of the most important qualities influencing the character and vitality of an educational institution. Academic misconduct or dishonesty is inconsistent with membership
in an academic community and cannot be accepted. Violations of academic honesty represent a serious breach of discipline and may be considered grounds for disciplinary action, including dismissal from the University. Academic dishonesty is defined to include those acts which would deceive, cheat, or defraud so as to promote or enhance one’s scholastic record. Knowingly or actively assisting any person in the commission of an above-mentioned act is also academic dishonesty. Students are responsible for upholding the principles of academic honesty in accordance with the “University Statement of Student Rights” found in the STUDENT HANDBOOK. The University requires that all assignments submitted to faculty members by students be the work of the individual student submitting the work. An exception would be group projects assigned by the instructor. In this situation, the work must be that of the group.

**Academic dishonesty includes:**

**Plagiarism.** In speaking or writing, plagiarism is the act of passing someone else’s work off as one’s own. In addition, plagiarism is defined as using the essential style and manner of expression of a source as if it were one’s own. If there is any doubt, the student should consult his/her instructor or any manual of term paper or report writing. Violations of academic honesty include:

1. Presenting the exact words of a source without quotation marks;
2. Using another student’s computer source code or algorithm or copying a laboratory report; or
3. Presenting information, judgments, ideas, or facts summarized from a source without giving credit.

**Cheating.** Cheating includes using or relying on the work of someone else in an inappropriate manner.

It includes, but is not limited to, those activities where a student:

1. Obtains or attempts to obtain unauthorized knowledge of an examination’s contents prior to the time of that examination.
2. Copies another student’s work or intentionally allows others to copy assignments, examinations, source codes or designs;
3. Works in a group when she/he has been told to work individually;
4. Uses unauthorized reference material during an examination; or
5. Have someone else take an examination or takes the examination for another.

For more information, refer to: [http://www.semo.edu/pdf/old/2014_Admissions.pdf](http://www.semo.edu/pdf/old/2014_Admissions.pdf)

Violation of the academic honesty policy could result in failure of the assignment, failure of the course, academic suspension, or expulsion.

**Civility**

Every student at Southeast is obligated at all times to assume responsibility for his/her actions, to respect constituted authority, to be truthful, and to respect the rights of others, as to respect private and public property. In their academic activities, students are expected to maintain high standards of honesty and integrity and abide by the University’s Policy on Academic Honesty. Alleged violations of the Code of Student Conduct are adjudicated in accordance with the established procedures of the judicial system.
**DISABILITY**
Southeast Missouri State University and Disability Support Services remain committed to making every reasonable educational accommodation for students with disabilities. Many services and accommodations, which aid in a student’s educational experience, are available for students with various types of disabilities. It is the student’s responsibility to contact Disability Support Services to become registered as a student with a disability in order to have accommodations implemented. Accommodations are implemented on a case-by-case basis. For more information visit the following site: www.semo.edu/lapdss or contact Disability Support Services at 573-651-227.

**Semester Grade Computation**
All of the work CH-310 counts toward your grade: no exams, homework, etc. will be "dropped".

**Lecture**
1. Exams (5) 50%
2. Final Exam* 25%
3. Homework 15%
4. In-class activities 10%

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100%

**XI. Initial grading scale**

<table>
<thead>
<tr>
<th>Points</th>
<th>Achievement Level</th>
<th>Grade</th>
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<tbody>
<tr>
<td>90-100%</td>
<td>Excellent</td>
<td>A</td>
</tr>
<tr>
<td>80-89%</td>
<td>Good</td>
<td>B</td>
</tr>
<tr>
<td>70-79%</td>
<td>Satisfactory</td>
<td>C</td>
</tr>
<tr>
<td>60-69%</td>
<td>Poor</td>
<td>D</td>
</tr>
<tr>
<td>0-59%</td>
<td>Failure</td>
<td>F</td>
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