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## COURSE SYLLABUS

Term: Spring 2016 (2015-2)

**Course: CHEM205 GENERAL & ANALYTICAL CHEMISTRY II - SECTION A**

### **Instructor Information:**

<b>Instructor Name</b>	Dr. Sandra Chimon Rogers (aka Dr. R)
<b>Office Number:</b>	335
<b>Phone Number:</b>	219-473-4268
<b>Other Contact</b>	Cell/Text (773)719-8759 (please identify yourself first) Snapchat DrPeszek
<b>Email:</b>	drrogers@ccsj.edu <b>All e-mail communication MUST be through your CCSJ e-mail account and contain "CHEM205A Spring" in the subject line if you expect a response.</b>
<b>Hours Available:</b>	All hours and schedules are posted outside of room 335. Monday & Wednesday from 6:45AM to 8:30AM. Tuesday 6:45AM-11:45AM, and Thursday 6:45AM – 10:15 AM. Monday-Thursday 1:30-2:00PM

**Instructor Background:** *B.S University of Illinois (Chemistry); Ph.D. University of Illinois (Chemistry); Post-Doctoral Fellow, University of Illinois (Bioanalytical Chemistry); Adjunct Professor: National Louis University (2008), Prairie State College (2008-2009), Elmhurst College (2008-2009), Visiting Assistant Professor: DePaul University (2009-2011) and Assistant Professor of Bioanalytical Chemistry and Director of Undergraduate Studies (2011-2013). Director of the Science Program, Assistant Professor at Calumet College (2013-present). Department Chair of Science, Math, and Behavioral Science (2015-present).*

#### **What does my research at Calumet College of St. Joseph entail?**

- Analyze structural and neurotoxic properties of neurodegenerative-disease related proteins and peptides, which are major suspects of Alzheimer's disease and Parkinson's disease
- Utilize various sample preparation techniques including but not limited to biochemical assays, kinetics, neurotoxic effects involving instrumentation such as fluorescence, UV/Vis, NMR, FTIR, and electron microscopy.

The types of sciences which are involved in my research cover a broad range of interdisciplinary aspects from analytical chemistry, physical chemistry, biophysics, nanotechnology, bioanalytical, molecular biology, biochemistry, and neuroscience.

**Theoretically, everyone in this class could get an A. This fact means that you are never in competition with your classmates. I have this policy to encourage you to study in groups for the exams to help each other out. I encourage you to follow your performance using the grades that will be posted on Blackboard.**

<b>Course Information:</b>	
<b>Course Time:</b>	8:30 AM - 10:00 AM, Mondays and Wednesdays
<b>Classroom:</b>	CCSJ 332
<b>Prerequisites:</b>	Placement into MATH 104 or higher, C- or better in CHEM 200 and 200L and concurrent enrollment in CHEM 205L
<b>Required Books and Materials:</b>	<p style="text-align: center;"><b>Required on a daily basis</b></p> <ol style="list-style-type: none"> <li>1. **You will need any current copy of the periodic table to bring with you to class daily.</li> <li>2. **You will need a scientific calculator. The calculator on your phone does not count. The calculator does not need to be expensive. For example, a Texas Instruments TI-30X II will suffice (\$10 at a big box store).</li> </ol> <p style="text-align: center;"><b>Strongly recommended:</b></p> <ol style="list-style-type: none"> <li>3. Chemistry: Structure and Properties: By Niva Tro 1st edition, Pearson Publishing, ISBN# 978-0321729736</li> </ol>
<p><b>Learning Outcomes/ Competencies:</b>  This is a list of very specific learning objectives for Chem 205A lecture. The lab will also provide hands-on opportunities to develop and apply this knowledge. Please note that for many of the topics in this course real world examples are used. If a specific objective is also partially addressed with an experiment, then the experiment number has been included in parenthesis. Also, on occasion, the topics result in brief discussions of economic and societal issues and some historical development can also be done so as to see the role science played in certain world events.</p> <p>By the end of this course, students will be able to:</p> <ol style="list-style-type: none"> <li>1. List factors that affect reaction rates.</li> <li>2. Write rate laws.</li> <li>3. Compare first and second order reactions.</li> <li>4. Determine, using the collision model, the effect of temperature on rates of reactions.</li> <li>5. Define reaction mechanisms.</li> <li>6. Describe elementary reactions.</li> <li>7. Describe and give examples of 2 types of catalysts.</li> <li>8. Describe equilibrium in terms of Le Chatelier's principle.</li> <li>9. Write equilibrium constant expressions.</li> <li>10. Calculate equilibrium constants.</li> <li>11. Compare and contrast the 3 acid - base models.</li> <li>12. Perform pH calculations.</li> <li>13. Distinguish between strong and weak acids and bases.</li> <li>14. Show the mathematical relationship between <math>K_a</math> and <math>K</math></li> <li>15. Using the common-ion effect, calculate the concentrations of ions in buffer solutions.</li> <li>16. List the factors that affect solubility.</li> <li>17. Describe a qualitative analysis scheme suitable for separating a selected list of metal ions.</li> <li>18. Describe the atmosphere and problems that the atmosphere is experiencing in chemical terms.</li> <li>19. List current freshwater challenges.</li> <li>20. Provide evidence of the importance of green chemistry.</li> <li>21. List the 2nd and 3rd laws of Thermodynamics.</li> <li>22. Compare entropy and enthalpy.</li> <li>23. Solve problems using the Gibbs Free Energy relationships.</li> </ol>	

24. Balance redox equations.
25. Distinguish between voltaic and electrolytic cells.
26. Calculate cell EMF under specified conditions.
27. Compare types of batteries.
28. Describe the effects of electrolysis and methods to control electrolysis.

**Course Description:**

A 3 credit hour course implementing topics in general chemistry and analytical chemistry which will cover such topics as phase transitions, thermochemistry, spontaneity/equilibrium, electrochemistry, kinetics, bonding, order/symmetry in condensed phases, coordination compounds, descriptive chemistry. Placement into MATH 104 or higher, C- or better in CHEM 200 and 200L and concurrent enrollment in CHEM 205L

**Learning Strategies:**

Active learning, Flipped learning, BlackBoard, group discussions, team projects, collaborative learning, lecturing, laboratory exercises, demonstrations

**Experiential Learning Opportunities:**

In class discussion, comprehension and critical thinking along with laboratory experience is essential for a fundamental understanding of the scientific method. This course has a required laboratory portion that provides students with experiential learning through experimental design, hypothesis development, data interpretation, and communication of results through laboratory reports.

**Assessments:**

**The point values for each category of assessment are listed below.** Point values for each category may be adjusted to reflect actual number of assignments, quizzes, etc., at the professor's discretion and any changes made during the semester supersede the point values reflected here; changes will be announced in class and posted on BlackBoard.

CATEGORY	DESCRIPTION	POINTS
<b>In class activities / Quizzes (about 20-35 total)</b>	Quizzes are given at the beginning of class; covers the assigned reading/previous lectures. In class activities are given at the end of the lecture to verify that you've learned the material and understand the concepts.	<b>20%</b>
<b>Lecture Exams</b>	90 minutes, during class (total of 4, dropping the lowest one)	Each 20% <b>Total 60%</b>
<b>Final Exam</b>	Cumulative ACS Gen Chem Cumulative Exam.	<b>20%</b>
	<b>TOTAL PERCENT</b>	<b>100%</b>

**Lecture**

**Week 1: Jan 11-Jan 15**

Introduction, Safety and Ethics – Assessment Exam

Solution Concentration, stoichiometry, precipitation reactions and acid base reactions

**Week 2: Jan 18-22**

**NO CLASS ON MONDAY, January 18, 2016**

Acid-Base reactions and oxidation-reduction reactions.

**Week 3: Jan 25-29**



C-	71-70	Attempts to discuss grades or grading issues over email will not be honored. You must speak with me about such matters during office hours or arrange a time for a separate appointment (contacting me about scheduling such an appointment over email is allowable).
D+	69-68	
D	67-62	
D-	61-60	
F	59 and below	In cases beyond simple arithmetic on the score sheet, the instructor reserves the right to re-grade the whole exam/report. Any issue not explicitly discussed here will be handled at the discretion of the instructor.

<b>Responsibilities</b>	
<b>Attending Class</b>	<p>You cannot succeed in this class if you do not attend. We believe that intellectual growth and success in higher education occur through interaction in the classroom and laboratories. However, we do not want to penalize students for participating in college-sponsored events. When you miss class because of a college event, you must give notice of your absence in advance, and you are responsible for all missed work. Being absent doesn't excuse you from doing class work; you have <b>more</b> responsibilities to keep up and meet the objectives of this course.</p> <p><u>Attendance is counted as being present from the first 10 minutes of class until the end of lecture and lab.</u> It is the student's responsibility to make attendance a priority. Anyone missing after the first 10 minutes of class will be marked absent unless a written excuse is provided within 24 hours of the occurrence. Similarly, anyone leaving early without a written excuse will be counted as absent.</p> <p>First class is on Monday, January 11<sup>th</sup>, 2016. Mondays and Wednesdays classes are 1 ½ hours long from 8:30 until 10:00 AM. These times will be used for lecture, to discuss homework, review material for exams, and administer exams, quizzes, and in-class assignments. Please remember that you are participants during these hours. In order to get the most out of each class, you should read the material we will cover prior to coming to class and <b>bring a calculator and periodic table DAILY</b> so that you can participate in in-class activities.</p> <p>It is to your benefit to attend each class meeting. <b><u>You are responsible for all material presented in class and all in-class announcements and assignments.</u></b> Attendance is mandatory, however, for all examinations since they cannot be made up at a later date without a valid excuse left to the discretion of the instructor of this course.</p> <p><i>Validated proof must be received by the instructor immediately to the instructor (no make-ups what so ever for any of the in class assignments).</i> <b>Any exceptions are left to the discretion of the instructor.</b> Train delays, broken down cars, oversleeping, forgetting, and other personal business are examples of invalid excuses.</p>

Additionally, you should plan to arrive on time and remain throughout the lecture to avoid disrupting the class. Other classroom disruptions, such as cell phones, pagers, etc. are unacceptable; these devices should be turned off before the start of class.

**80% of success is showing up -Woody Allen**

There are only 27 class meetings in a given semester, 4 of those class meetings are exams and 1 is the initial introduction day, therefore each class meeting covers ~8% of the course material. You are responsible for your own education. Based on the calculations below, The basic, full-time tuition rate for the academic year, (not including housing, fees, student health etc.) is approximately \$15,000. There are a total of 32 hours of class time in a quarter; this means that at the very minimum **for every hour of class costs you about \$86**. You have already paid for this class and it is up to you to make the most out of this investment.

$$\frac{\$15,000}{1 \text{ year}} \times \frac{1 \text{ year}}{2 \text{ semesters}} \times \frac{1 \text{ semester}}{12 \text{ credits}} \times \frac{3 \text{ credits}}{32 \text{ contact hours}}$$

$$= \$58.59 \text{ per hour} \times \frac{1.5 \text{ Hours}}{1 \text{ class meeting}} = \$87.89 \text{ per class meeting}$$

If for whatever reason you have to miss class, please approach your fellow students for the notes you missed, and take advantage of the class materials that will be posted on Blackboard <http://class.ccsj.edu>

Intellectual growth and success in college is reinforced through interaction in the classroom. Students reach personal goals and course outcomes through regular and prompt attendance. **Therefore, three (3) unexcused absences will result in an administrative withdrawn from the course.**

Participation through regular attendance is required to be successful in this course. Therefore, if a student is absent more than three (3) times (excessive tardiness is counted as absence), the student will be subjected to a grade of F or FW per policy stated under the Withdrawal from Classes section on this syllabus.

In the event of absence during an exam, the student will receive a ZERO (0) on that exam. The lowest exam score is dropped, so that exam score will not be considered when determining the final grade. If a student is absent during more than one exam, the student will receive a ZERO (0) for each exam, but only one grade will be dropped. It is the student's responsibility to ensure attendance on exam dates.

In the event of absence during lab, the student will receive a ZERO (0) for that report. As with exams, one lab report is dropped so one absence is permitted without penalty.

**Turning In Your Work**

You cannot succeed in this class if you do not turn in all your work on the day it is due. Due dates are specified for each assignment on this

	<p>syllabus; any changes will be announced in class and posted on BlackBoard.</p> <p><b>ASSIGNMENTS WILL NOT BE ACCEPTED AFTER THEIR DUE DATES.</b> You may request an extension in writing at least 24 hours in advance of the due date for assignments, but it is up to the instructor's discretion whether or not to allow an extension.</p> <p><b>If you are absent the day that an assignment is due, follow these guidelines:</b></p> <ul style="list-style-type: none"> <li>• IN-CLASS ACTIVITIES: not turned in; it is the student's responsibility to do this work independently after an absence.</li> <li>• QUIZZES: cannot be turned in late or made up; student will receive a zero on all missed quizzes.</li> </ul> <p>See "<b>attending class</b>" above. All assignments can be submitted via e-mail if a link is not provided through BB. It is the student's responsibility to request extensions in writing from the instructor.</p>
<p><b>Using Electronic Devices</b></p>	<p>In order to minimize distractions in the classroom, please turn off the sound on cell phones and pagers and keep classroom chatter and eating noises to a minimum. No social media chatting/texting will be allowed to be used during lecture or lab times unless otherwise directed by the instructor. No videotaping or recording of lecture without written consent and discretion of the instructor. The instructor reserves the right to ask you to leave the room if you interrupt the class.</p> <p>The science faculty will address electronic device use as follows:</p> <p style="padding-left: 40px;">Occurrence</p> <ul style="list-style-type: none"> <li>• 1<sup>st</sup> - Student is given a verbal warning.</li> <li>• 2<sup>nd</sup> - Student is instructed to leave the classroom. The student cannot return to class until they have met with the professor.</li> <li>• 3<sup>rd</sup> - Student is instructed to leave the classroom. The student can return to class until they have meet with the V.P. of Academic Affairs.</li> </ul> <p><i>Things can and do happen. If someone really needs to reach you while you are in class, please inform the professor at the beginning of class. You can set your device to "vibrate" and answer your phone call in the hallway.</i></p> <p>In order for the lectures to flow smoothly and for the class to get the most of the time spent together, I request that the use of the podium computer be prohibited 10 minutes prior to lecture and 10 minutes post lecture.</p>
<p><b>Participating in Class</b></p>	<p>Participation will be expected during in-class active learning exercises in order to receive full credit for those assignments. Points for those activities is decided based on observations made by the instructor. Full points are awarded to students whom participate in all group activities and laboratory exercises. Disrespectful or disengaged students may be asked to leave and will be marked absent and given a zero for that day's assignment.</p>

**Reading Assignments/Homework:**

Each week's assignment(s) is(are) laid out on the last page of this syllabus. In regards to any announcements, a reading assignment for that week, and a list of suggested problems from your textbook will be posted on Blackboard. The suggested problems **will be randomly collected and graded as a part of your participation grade**. These problems are intended to help you understand the course material more deeply and help you prepare for the exams. The Blackboard assignments will count towards your final grade (see Blackboard). You should always feel free to work on additional problems in your textbook.

Students are **required to read the assigned text materials before class** and are expected to attend classes. This enables in depth discussion of the material, homework questions and current topics in chemistry. Students are expected to ask questions as well as be called upon to answer questions in class. Regular class attendance as well as participation in class activities and discussions will be considered for participation grade.

There will also be daily in-class assignments. The assignments will be given on a regular basis. The lowest 2 will be dropped. You may work on these with the help of your classmates and the instructor. These assignments will vary in their content and formatting, and each will cover different material and will be uniquely challenging. Their purpose is to give you individual practice on the skills we are learning and to explore some ideas more thoughtfully and deeply.

If you miss a lecture, you are more than welcome to stop by the instructor's office to obtain a copy of any in class assignments that you have missed. However, they will **not** be graded for points. Any exceptions can be left to discretion of the instructor for the final decision. Also, the instructor will not carry any of the missed in-class assignments; it is the responsibility of the student to obtain any material missed and to catch up on any missed lectures. The instructor will **not** give you a personal lecture on what you missed due to your absence.

**Exams:**

There will be **four, one-hour**, in-class exams. You will be held responsible for all of the material discussed in class, on Blackboard assignments, all in class assignments, and the assigned readings from your textbook. Lecture, the text, in class problems and homework are all fair game. While an occasional homework problem might appear on an exam, most exam problems require you to apply what you have learned to more challenging problems so that your mastery of the material (rather than simply its memorization) can be best assessed.

**If you are late for an exam, you must arrive before the first person leaves the room,**

otherwise you will not be allowed to take the exam and you will receive a 0. Cell phones are expressly prohibited during exams, and must be placed on the ledge and silenced during the exam as shown in the figure to the right.



All students are required to take the ***cumulative*** final exam. The final exam schedule is TBA.

#### **Exam Rules:**

Items which students may *not* have near them during the exams include:

- Coats, jackets, hats, or other items of outerwear
- Backpacks, pencil cases, purses, or other bags
- Cell phones or pagers
- Graphing calculators
- Covers for non-graphing calculators

Essentially, you may bring with you a non-graphing calculator (but not its cover) and a pen or pencil (or two). If you are not sure whether an item is permitted, please ask the instructor before the exam. There is no talking during exams.

Items you are not permitted to have during exams should be placed at the designated area prior to the exam. Neither the instructor nor the department is responsible for any loss or theft of personal items.

The instructor retains the right to issue an exam grade of zero to any student found to be in violation of one or more exam rules.

#### **MAKE-UPS:**

***NO MAKE-UPS. This includes the final exam!*** Make-up exams **will not** be given except upon the discretion of the instructor which includes: a death in the family and/or athletic competition (not athletic practice). For illnesses, or a death in the family, it will need to be verified and left to discretion of the instructor for the final decision. Athletic competition that interferes with exams will require documentation to be presented to me at the beginning of the course. In all cases, I should be notified as soon as possible, which should be before the exam takes place. Make-up exam will be scheduled within 2 days of date scheduled for all students missing exams for **valid** reasons. Any issue not explicitly discussed here will be handled at my discretion. If you require special accommodations for taking exams due to any form of disability, please provide me with the appropriate documentation

	<p>within the first week of the course to address your needs. Graded exams will not be distributed during lecture time. In order to obtain a copy of your exam, please stop during the instructors' office hours. You are free to go over the exams with the instructor in details. Please see the note in the "Grading Scale". Also, final exams will not be returned to the students. You are free to come by and look at your exam, but the exam will not leave the instructors office.</p>
<p><b>Doing Your Own Work</b></p>	<p>It will be assumed at all times that work handed in is one's own and one's own alone, unless specific credit is given to the contributions of others. The giving or receiving of assistance during examinations is dishonest. Any violations of the academic integrity (i.e., copying assignments, plagiarism, cheating on exams, etc...) will be treated with the utmost seriousness.</p> <p><u>Cheating on Exams</u>  Cheating on exams comes in two forms: (1) Communicating with others in any form, either verbally or nonverbally, as a way of sharing information during an exam; (2) Bringing in some sort of aid, such as notes, to assist you during the taking of an exam. To help facilitate honest test taking, I will require that all cell phones be shut off and put away, all tables cleared, and all hats removed, during all exams.</p> <p><u>Plagiarism</u>  Plagiarism is the presentation of the ideas, opinions, or the writings of others as though it were your own. Plagiarism is stealing. It is dishonest, unethical, and illegal. It is also not a very smart approach to school, because it defeats the point of your being here, namely, to improve your own powers of thought and expression.</p> <p><u>Consequences of Academic Dishonesty</u>  I have zero tolerance for cheating or plagiarism in my classroom. If you are caught cheating on an exam, or if you are caught plagiarizing on a written assignment, you will receive a zero on that exam or written assignment without impunity. You will not be given the opportunity to retake an exam, or to drop or rewrite the assignment. I will also turn the matter over to the proper channels for further possible action. I will have no reservations reporting this activity.</p> <p>If an instructor or other Calumet College of St. Joseph personnel find that a student has plagiarized or been involved in another form of academic dishonesty, the instructor or other personnel may elect to bring the matter up for judicial review. The maximum penalty for any form of academic dishonesty is dismissal from the College. The procedures for judicial review are listed under the section of CCSJ handbook that addresses student grievances.</p> <p>PLEASE NOTE: All papers can and may be submitted for checks on plagiarism from the Internet/Electronic sources/Databases.</p>

	<p>If you turn in work that is not your own, you are subject to judicial review, and these procedures can be found in the College Catalog and the Student Planner. The maximum penalty for any form of academic dishonesty is dismissal from the College.</p> <p>Using standard citation guidelines, such as MLA or APA format, to document sources avoids plagiarism. The Library has reference copies of each of these manuals, and there are brief checklists in your Student Handbook and Planner.</p> <p>This course uses MLA format for all citations.</p> <p><b>PLEASE NOTE:</b> All papers may be electronically checked for plagiarism.</p>
<b>Withdrawing from Class</b>	After the last day established for class changes has passed (see the College calendar), you may withdraw from a course by following the policy outlined in the CCSJ Course Catalog.

<b>Resources</b>	
<b>Student Success Center:</b>	The Student Success Center provides faculty tutors at all levels to help you master specific subjects and develop effective learning skills. It is open to all students at no charge. You can contact the Student Success Center at 219 473-4287 or stop by the Library.
<b>Disability Services:</b>	Disability Services strives to meet the needs of all students by providing academic services in accordance with Americans with Disabilities Act (ADA) guidelines. If you believe that you need a “reasonable accommodation” because of a disability, contact the Disability Services Coordinator at 219-473-4349.
<b>CCSJ Alerts:</b>	<p>Calumet College of St. Joseph’s emergency communications system will tell you about emergencies, weather-related closings, or other incidents via text, email, or voice messages. Please sign up for this important service annually on the College’s website at:  <a href="http://www.ccsj.edu/alerts/index.html">http://www.ccsj.edu/alerts/index.html</a>.</p> <p>In addition, you can check other media for important information, such as school closings:</p> <p><b>Internet:</b> <a href="http://www.ccsj.edu">http://www.ccsj.edu</a>  <b>Radio:</b> WAKE – 1500 AM, WGN – 720 AM, WIJE – 105.5 FM, WLS – 890 AM, WZVN – 107.1 FM, WBBM NEWS RADIO 78  <b>TV Channels:</b> 2, 5, 7, 9, 32</p>