
Calumet College



of Saint Joseph

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Calumet College of St. Joseph is a Catholic institution of higher learning dedicated to the academic, spiritual and ethical development of undergraduate and graduate students. Informed by the values of its founding religious community, the Missionaries of the Precious Blood (C.P.P.S.), the College promotes the inherent dignity of all people, social justice, an ethic of service, student empowerment, opportunity, and lifelong learning.

We are committed to the Five Pillars of a CCSJ Education: The CCSJ graduate will be Open to Growth, Intellectually Competent, Religious, Loving, and Committed to Doing Justice. This class, as outlined below, will help you to achieve those goals.

COURSE SYLLABUS, Fall 2020

Course: CHEM 445 Physical Chemistry I
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Instructor Information:	
Instructor Name	Dr. Ahmed Lakhani
Office Number:	Room 512
Phone Number:	219-473-4275
Email:	alakhani@ccsj.edu
Office Hours:	Office Hr. in-person: Monday and Wednesday: 12:00 pm – 1:30 pm Office Hr. via phone: Monday to Thursday 9 am to 10 am and 5 pm to 6:30 pm. Send me an email or text with at least 1-hour notice before the time you would like to meet. Google number: 224-801-4308
Instructor Background:	B.S. in Biochemistry from University of Illinois at Urbana-Champaign. Ph.D. in Chemistry (focus in Physical Chemistry) from University of Illinois at Chicago. Research interest: Structures Elucidation of Biomolecule via Optical Spectroscopy (IR, UV-Vis, VCD, ECD, etc.)

Course Information:	
Course Delivery Method:	Traditional: This course will be delivered in the traditional fashion, face-to-face on campus during its scheduled day and time
Course Time:	Traditional Lecture: Tuesday/Thursday 12:00 am to 1:30 am
Classroom:	Room 332
Prerequisites:	C or better in CHEM 200, CHEM 200L, CHEM 205, CHEM 205L, CHEM 310, CHEM 310, CHEM 311, CHEM311L, MATH 230 and concurrent enrollment in CHEM 445L.
Required Books and Materials:	Required on a daily basis: 1) You will need any current copy of the periodic table to bring with you to class daily

2) You will need a scientific calculator. The calculator on your phone does not count. The calculator does not to be expensive. For example, a Texas Instrument TI-30X II will suffice (\$10)
Book: Physical Chemistry for the Chemical and Biological Science: By Raymond Chang

Learning Outcomes/ Competencies:

Students in this course will:

1. Develop an understanding of physical chemistry, structural chemical biology, and thermodynamics.
2. Familiarize with modern experimental methods used to study thermodynamic and kinetic mechanisms.
3. Understand the modern tools used to monitor the secondary, tertiary and quaternary structures of biomolecules
4. Apply principles of thermodynamics to bio/chemical phenomena and related measuring tools and techniques.
5. Understand kinetic principle and related equations that describe enzymatic catalysis and critically interpret the results of the related experiments.

This course meets the following learning objectives for the Biomedical Science program:

- Scientific Knowledge and Critical Thinking:
 - Students will demonstrate substantial and up to date core knowledge of broad areas in basic biomedical, translational, or clinical research.
 - Students will demonstrate the ability to accurately and critically evaluate their own scientific work and work of others.
- Research Skills and Problem-Solving Ability:
 - Students will demonstrate advanced understanding of a range of technical and conceptual approaches used in biomedical research.
 - Students can design, carry out, and interpret research projects that generate new knowledge that advances the biomedical science and human health.
- Specific Expertise:
 - Students can articulate the significance of their own work to their chosen research area in both historical and forward-looking contexts.
 - Students will demonstrate mastery of a range of technical and conceptual approaches used in their selected research area.
- Communication:
 - Students will demonstrate the oral, written and media communication skills required to be effective communicants, teachers and mentors of peers, future scientist and scientifically literate citizens.
- Ethics and Advocacy:
 - Students will apply highest standards of ethics to their research (data managements, research subjects, stewardship of research funds)
 - Students will improve their confidence and interactions with colleagues and the public.
 - Students will be able to advocate for the role of science in medicine and society.
- Career Preparation:
 - Students can articulate an appropriate set of desire potential career paths, and are aware of the preparation and initiative required to pursue these paths

Course Description: A 3-credit hour course. This course covers topics such as the thermodynamics of gases, solutions, reaction equilibria, and phase transition.
Learning Strategies: Active learning, Blackboard, group discussions, team projects, collaborative learning, interactive lecturing, laboratory exercises, demonstration.
Experiential Learning Opportunities: In class discussion, comprehension and critical thinking along with laboratory experience is essential for a fundamental understanding of the scientific methods. This course has required laboratory portion that provides students with experiential learning through experimental design, hypothesis development, data interpretation, and communication of results through laboratory reports. Alongside the weekly lab reports, the students will prepare a final poster at the end of the semester to be presented and submitted to a local conference.

Assessments:		
Major Assignments:	Completed at the end of each chapter. Approximately 15.	25%
Assessments:	Quizzes: Given at the beginning of class; covers the assigned reading/previous lecture Lecture Exam: Four 90 minutes' exam will be administered during class (total of 4)	10% (Each 15%) Total: 60%
Class Participation:	Class attendance and participation	5%
Total	Total Percent	100%
Grading Scale:		
100% – 92%: A	91% – 90%: A-	
89% – 88%: B+	87% – 82%: B	81% – 80%: B-
79% – 78%: C+	77% – 72%: C	71% – 70%: C-
69% – 68%: D+	67% – 62%: D	61% – 60%: D-
59% and below:	F	

Course Schedule:

CHEM 200 Lecture			
Class Date	Lecture/Class Discussion/Activities	HW	Quiz
	Introduction, Course Overview		
Aug 25 & 27	Chapter 8 Electrolyte Solution	Ch. 8	Ch. 8
Sept 1 & 3			
Labor Day, No Class Monday, September 7, 2020			
8 & 10	Chapter 9 Chemical Equilibrium	Ch. 9	Ch. 9
15 or 17	EXAM 1		
22 & 24	Chapter 11 Acids and Bases	Ch. 11	Ch. 11
Sept. 29	Chapter 12 Chemical Kinetics	Ch. 12	Ch. 12
Oct. 1	EXAM 2		
6 & 8	Chapter 13 Enzyme Kinetics	Ch. 13	Ch. 13
13 & 15	Chapter 14 Quantum Mechanics and Atomic Structure	Ch. 14	Ch. 14
20	EXAM 3		
22 & 27	Chapter 15 The Chemical Bond	Ch. 15	Ch. 15
Oct. 29	Chapter 16 Intermolecular Forces	Ch. 16	Ch. 16
Nov. 3	EXAM 4		
5 & 10	Chapter 17 Spectroscopy	Ch. 17	Ch. 17
12 & 17 & 19	Chapter 22 Macromolecules	Ch. 22	Ch. 22
Thanksgiving Break, No Class November 23 to 28, 2020			
Dec. 1 & 3	Continue to cover chapter 22 and review for Final exam		
10	Final EXAM		

I reserve the right to change this schedule to meet the needs of the class.

Student Responsibilities	
Safety Measures	<p>The safety of our College Family in this unprecedented time is our primary concern. Following guidelines presented by the Centers of Disease Control (CDC), the Indiana Health Department, and best practices among other institutions of higher education, we are requiring the following:</p> <ul style="list-style-type: none"> • Face coverings over the mouth and nose in all indoor public spaces, including classrooms, the library, the Tutoring Center, and faculty offices. • Because face coverings are in use, no eating or drinking in the classroom. Plan to meet your needs between classes using appropriate social distancing. • Daily self-monitoring. If you have a temperature of 100.4 or higher, or any symptoms of COVID-19 – fever or chills, a cough, shortness

	<p>of breath or difficulty breathing, fatigue, muscle or body aches, headache, loss of taste or smell, sore throat, or nausea or vomiting – stay home and consult the class policy for staying on track.</p> <ul style="list-style-type: none"> • Disinfecting your personal space using the materials provided when you enter the classroom. • Maintaining physical distancing of at least six feet within classrooms and other common spaces. <p>Please note: To accommodate students who may not be able to attend class in person, this class may be taped and posted to the course Blackboard site. Tapes will not be used for any other purpose outside of class.</p>
What to Do in Case of Illness	<p>If you are exposed to COVID 19, become ill, or are otherwise unable to attend classes as required, notify the College by sending an email to illness@ccsj.edu. The message that you are unable to attend class will be relayed to your faculty. The College will contact you with expectations regarding next steps and follow-up.</p>
Attending Class	<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. Being absent doesn't excuse you from doing class work; you have more responsibilities to keep up and meet the objectives of this course.</p> <p>Attendance Attendance is counted as being present from the first 10 minutes of class until the end of lecture/lab. Anyone missing after the first 10 minutes of class will be marked late. If you are still missing after the first 15 minutes of class, you 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>General Absences You are responsible for all material presented in class and all in-class announcements and assignments. 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</p> <p>ALL planned and unplanned absences must be communicated to your instructor via email (Subject: Last name, First name, "CHEM 310 Lecture Absent", Date) with a brief explanation.</p> <p>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 withdrawal from the course. Furthermore, excessive tardiness (every 2 late arrivals) will result in 1 absence. The student may be subjected to a grade of F or FW per the policy stated under the Withdrawal from Classes section on this syllabus.</p> <p>Absence due to college events 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 24 hours in advance according to the communication guidelines above, and you are responsible for all missed work. Being absent doesn't excuse you from doing class work; you have more responsibilities to keep up and meet the objectives of this course.</p> <p>Exams</p> <ul style="list-style-type: none"> • 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. • All students are required to take the final exam.

	<ul style="list-style-type: none"> • • The final exam schedule is TBA. <p>Items which students may not have near them during the exams include:</p> <ul style="list-style-type: none"> • • Coats, jackets, hats, or other items of outerwear • • Backpacks, pencil cases, purses, or other bags • • Cell phones or other electronic devices • • Graphing calculators • • Covers for non-graphing calculators <p>If you are not sure whether an item is permitted, please ask the instructor before the exam. 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.</p> <p>NO MAKE-UPS. Make-up exams will not be given except upon the discretion of the instructor. Athletic competition that interferes with exams will require documentation to be presented to the instructor by the end of the first week of classes. Extension requests for extenuating circumstances can be submitted via email to the instructor. In the event the instructor approves the extension; a make-up exam will be scheduled within 2 days of the original exam date.</p> <p>If you require special accommodations for taking exams, please submit to the instructor the appropriate documentation from the Office of Disability, 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 detail. Please see the note in the “Grading Scale”. 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>Note: If Zoom class sessions have been scheduled for this course, students should prepare to have both video and audio activated during each session. This means you should be visibly present and actively engaged during the session, not just audibly present with a picture or name as your screen. All zoom class sessions will occur at your class’s originally scheduled day and time. For example, if your class was to meet on M/W from 12p to 1:30p, the zoom class session will meet at some point during this time. Scheduled Zoom class session dates and times can be found in the “Course Schedule” section of this syllabus.</p>
<p>Turning In Your Work</p>	<p>You cannot succeed in this class if you do not turn in all your work when due. Homework will not be accepted after the due date. Extension requests for extenuating circumstances can be submitted via email to the instructor. Decisions on make-up work are left to the discretion of the instructor.</p>
<p>Meeting Standards for Classroom Behavior</p>	<ul style="list-style-type: none"> • Use all the class time. Come to class on time and stay in class until the end. Coming late, leaving early, and getting up during class disrupts the class and disrespects others. • Come prepared. Bring your texts, be prepared to take notes, and be able to demonstrate that you have completed the assignments for the day through your participation in class. • Respect others. Listen when your classmates and the instructor are speaking. Think about their contributions. Respond appropriately.

	<ul style="list-style-type: none"> • Use electronic devices only for class purposes. Engage with your classmates and the instructor without technological distractions. <p><i>Electronic devices</i> can only be used in class for course-related purposes. If you text or access the Internet for other purposes, you may be asked to leave, in which case you will be marked absent.</p> <p>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 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 uses as follows:</p> <p>Occurrence</p> <p>1st – Students is given a verbal warning 2nd – Students is instructed to leave the classroom The student cannot return to class until they have met with the professor.</p> <p>3rd – Student is instructed to leave the classroom The student cannot return to class until they have met with V.P. of Academic Affairs.</p>
<p>CCSJ Student Honor Code</p>	<p>This course asks students to reaffirm the CCSJ Student Honor Code:</p> <p>I, as a student member of the Calumet College academic community, in accordance with the college's mission and in a spirit of mutual respect, pledge to:</p> <ul style="list-style-type: none"> • Continuously embrace honesty and curiosity in the pursuit of my educational goals; • Avoid all behaviors that could impede or distract from the academic progress of myself or other members of my community; • Do my own work with integrity at all times, in accordance with syllabi, and without giving or receiving inappropriate aid; • Do my utmost to act with commitment, inside and outside of class, to the goals and mission of Calumet College of St. Joseph.
<p>Doing Your Own Work</p>	<p>If you turn in work that is not your own, you will be subject to judicial review by the Faculty-Student Grievance Committee. These procedures can be found in the Student Planner. The maximum penalty for any form of academic dishonesty is dismissal from the College.</p> <p>Using standard citation guidelines to document sources avoids plagiarism. You'll find guides to the major citation methods at the CCSJ Specker Library Web page at http://www.ccsj.edu/library/subjectsplus/subjects/guide.php?subject=cite</p> <p>You'll also find a comprehensive guide to understanding what constitutes plagiarism, "What Is Plagiarism," on the Specker Library Web page at https://www.ccsj.edu/library/What%20is%20Plagiarism.pdf This guide comes from Plagiarism.com, and covers many ways in which plagiarism can occur. Be sure to review this important source!</p>

	Please note: All papers may be electronically checked for plagiarism.
Sharing Your Class Experience	Your voice matters! At the end of the term, you will have the opportunity to evaluate your classroom experience. These confidential surveys are essential to our ongoing efforts to ensure that you have a great experience that leaves you well prepared for your future. Take the time to complete your course evaluations – we value your feedback!
Withdrawing from Class	After the last day established for class changes has passed (see the College calendar in the CCSJ Course Catalog), you may withdraw from a course by following the policy outlined in the Course Catalog.

Resources	
CCSJ Book Rental Program	The CCSJ Book Program ensures that everyone has the right course materials on the first day of class to be successful. You pay a book rental fee each semester, and in return, receive all the materials for all your classes prior to the beginning of classes. At the end of the semester, simply return the books. For traditional students, the Book Rental Program is conveniently located in the library, where students can pick up and return their books. For students in accelerated programs and graduate programs, books will be delivered to their homes and they can return them by mail. For more information, see http://www.ccsj.edu/bookstore . All books must be returned at the end of the semester or you will incur additional fees, which will be charged to your student account.
Student Success Center	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. In addition, you can access online tutoring at Tutor.com. See the link within the Blackboard course.
Disability Services	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.
Student Assistance Program	Through a partnership with Crown Counseling , Calumet College of St. Joseph provides a free Student Assistance Program (SAP) to current students. The SAP is a confidential counseling service provided to students for personal and school concerns which may be interfering with academic performance and/or quality of life. The SAP counselor is available on campus once a week and off-site at the Crown Counseling offices in Crown Point or Hammond. For more information, contact Kerry Knowles SAP Counselor , at 219-663-6353 (office), 219-413-3702 (cell), or kerryk@crowncounseling.org .
CCSJ Alerts	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: http://www.ccsj.edu/alerts/index.html .