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**Calumet College**

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**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.*

**COURSE SYLLABUS, Spring 2018****PHYS 305A: General Physics II (Lecture)****Instructor Information:**

<b>Instructor Name</b>	Dr. Michael Keiderling
<b>Office Number:</b>	336
<b>Phone Number:</b>	
<b>Email:</b>	mkeiderling@ccsj.edu
<b>Hours Available:</b>	Monday 5:00 – 6:00 PM Wednesday 6:45 – 7:45 Room 336
<b>Instructor Background:</b>	B.S. in Physics, Johns Hopkins University 2006. Ph.D. Physics, Rutgers University 2015. Research Interest: Low Temperature Physics.

**Course Information:**

<b>Course Time:</b>	Lecture: Monday & Wednesday 3:30 – 5:00 PM Lab: Wednesday 5:15 – 6:45 PM
<b>Classroom:</b>	336
<b>Prerequisites:</b>	Currently enrolled in MATH 230 or higher and concurrently enrolled in PHYS Lab Completed PHYS300
<b>Required Books and Materials:</b>	Physics (Fifth edition): James S. Walker
<b>Learning Outcomes/ Competencies:</b> Students in this course will: <ul style="list-style-type: none"><li>• <b>Critical Thinking:</b> Gathering, analyzing, synthesizing, evaluating, and applying information</li><li>• <b>Interpersonal Skills:</b> Interacting collaboratively to achieve common goals.</li><li>• <b>Quantitative and Empirical Reasoning:</b> Applying mathematical, logical and scientific principal and methods</li></ul>	

- **Technology Skills:** Using appropriate technology to retrieve, manage, analyze, and present information.

**The goals of this course are to gain an understanding of the classical law of physics and how they are applied to real world problems. The students will learn the physics of motion, fluids, and vibratory motion. Students will be able to solve real-world problems using the laws of classical physics and the mathematics of trigonometry and algebra. Students will also understand the nature of the scientific method and how to frame questions to be able to apply the techniques of physics to obtain answers to physical problems**

This course meets the following program objectives:

1) Scientific Knowledge and Critical Thinking

Students will accurately and critically evaluate their own scientific work and the work of others

2) Research Skills and Problem Solving Ability:

Students will demonstrate successful completion of a minimally supervised research project via the use of advanced technical and instrumental approaches used in biomedical research.

Students can design, carry out, and interpret research projects that generate new knowledge that advances the biomedical sciences and human health.

3) Communication:

Students will demonstrate the oral, written and media communication skills

Students can articulate the significance of their own work to their chosen research area in both historical and forward-looking contexts.

4) Ethics and Advocacy:

Students will apply highest standards of ethics to their research (data management, research subjects, stewardship of research funds)

Students will be able to advocate for the role of science in medicine and society

5) Career Preparation:

Students can articulate an appropriate set of desired potential career paths, and are aware of the preparation and initiative required to pursue these paths

**Course Description:** A 3-credit hour calculus based physics course implementing electrostatics; electric currents; d-c circuits; magnetic fields; magnetic media; electromagnetic induction; a-c circuits; Maxwell's equations; electromagnetic waves; reflection and refraction; interference. Prerequisite: C or better in MATH 230 and concurrently enrolled in MATH 231 (or consent of the program director) and C or better in PHYS 300 and PHYS 300L while concurrently enrolled in PHYS 305L.

**Learning Strategies:** Blackboard, Technology, Service Learning, Group Discussions, Team Projects, Collaborative Learning, Lecturing and Lab

**Experiential Learning Opportunities:**

project-based learning, and/or significant undergraduate research leading to presentations or publication.

## Assessments:

### 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	

Assignment	Points possible
~8 Lab performance (@ 10 points each)	80 points
~8 Homework Assignments (80 pt max)	80 points
~6 quizzes (@ 10 points each)	60 points
2 Exams (@ 100 points each)	200 points
Final comprehensive exam	200 points
<b>Total</b>	

**In-Class Quizzes:** There will be approximately 6 – 8 (points will be adjusted accordingly) quizzes, In an effort to engage the class during the lecture period, each student will be expected to participate in class. This will be accomplished both by in-class quizzing and each student being called on to answer questions during the lecture.

**Homework Assignments:** There will be approximately 6 – 8 (points will be adjusted accordingly). Each student will be expected to solve the assigned homework problems on his/her own time. Some of the homework problems will be used as examples in class; and, additional practice problems will be distributed throughout the semester to accommodate additional support. Students should come to the office and ask for help if there is a need for assistance in solving problems assignments.

**Exams:** There will be 2 hr. exams and 1 final exam during the semester. Each exam will be a closed book exam. No notes or equation cards/sheets will be allowed. Additionally, *programmable calculators* will NOT be allowed, this rule will be strictly enforced. Each student is responsible for pre-approving his or her calculator with the instructor **BEFORE** each exam. Each exam will count toward your overall course grade.

**Calculators:** A scientific calculator, with log functions, is required for the course. Calculators may not be shared during tests and quizzes. **CELLULAR PHONES or iPADS** are not acceptable substitutes and are prohibited.

### Laboratory:

There will be approximately 8 -12 laboratory experimental (points will adjusted accordingly) reports will be required for this course. Laboratory grades will be based on the submitted, individually prepared, lab reports, performance of practice exercises, and participation. Laboratory reports are due at the beginning of the next scheduled formal lab. Late lab report submissions will not be accepted. A style sheet for lab report requirements and format is included with this syllabus. Lab information packets will typically be distributed one class day before the lab. Students must read the lab handouts and be familiar with the intention and basics of the experiment prior to performing the lab. Missed labs can be made up in an Open Lab towards the end of the semester. **A maximum of three (3) labs can be made up in this manner. PLEASE NOTE: All experimental**

*data of completed work must have the instructor-initial signature prior to leaving the lab. This is required for the student to obtain full credit for the lab.*

**Course Schedule:**

**Lecture Schedule**

Week	Topics	Chapter
1	Energy	8
2	Electric Fields & Forces	19
3	Electric Potential	20
4	Current and Resistance	21
5	Circuit	21
6	<b><i>Exam 1</i></b>	
7	Magnetic Fields and Forces	22
8	<b><i>Spring Break</i></b>	
9 - 10	Electromagnetic Wave; Ac Electricity	24 - 25
11	<b><i>Exam 2</i></b>	
12	Wave Optics	26
13	Ray Optics	26
14	Optical Instrument	27
15	Optical cont.	
16	<b><i>Final Exam</i></b>	

**Note\*** The course schedule is tentative. The instructor reserves the right to change this syllabus at any time. Any changes will be announced in class in advance.

<b>Responsibilities</b>	
<b>Attending Class</b>	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.
<b>Turning In Your Work</b>	You cannot succeed in this class if you do not turn in all your work on the day it is due.  Work is to be handed in in class on the day it is due.
<b>CCSJ Student Honor Code</b>	This course asks students to reaffirm the CCSJ Student Honor Code:  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: <ul style="list-style-type: none"> <li>• Continuously embrace <b>honesty and curiosity</b> in the pursuit of my educational goals;</li> <li>• Avoid all behaviors that could impede or distract from the academic progress of myself or other members of my <b>community</b>;</li> <li>• Do my own work with <b>integrity</b> at all times, in accordance with syllabi, and without giving or receiving inappropriate aid;</li> <li>• Do my utmost to act with commitment, inside and outside of class, to the goals and <b>mission</b> of Calumet College of St. Joseph.</li> </ul>
<b>Using Electronic Devices</b>	Electronic devices 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.
<b>Participating in Class</b>	You must be on time, stay for the whole class and speak up in a way that shows you have done the assigned reading. If you are not prepared for class discussion, you may be asked to leave, in which case you will be marked absent.
<b>Doing Your Own Work</b>	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.  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.  <b>PLEASE NOTE:</b> All papers may be electronically checked for plagiarism.
<b>Tracking Your Progress</b>	Your midterm grade will be available on MyCCSJ between Weeks 6 and 8. Be sure to see how you're doing and follow up with your instructor.
<b>Sharing Your Class</b>	At the end of the term, you will have the opportunity to evaluate your

<b>Experience</b>	classroom experience. These confidential surveys are <i>essential</i> 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!
<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>Student Assistance Program</b>	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. For more information, contact the Vice President for Enrollment and Retention, Dr. Dionne Jones-Malone, Office # 611, 219-473-4305.
<b>CCSJ Alerts:</b>	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> .

## Emergency Procedures

### MEDICAL EMERGENCY

#### EMERGENCY ACTION

1. Call 911 and report incident.
2. Do not move the patient unless safety dictates.
3. Have someone direct emergency personnel to patient.
4. If trained: Use pressure to stop bleeding.
5. Provide basic life support as needed.

### FIRE

#### EMERGENCY ACTION

1. Pull alarm (located by EXIT doors).
2. Leave the building.
3. Call 911 from a safe distance, and give the following information:
  - Location of the fire within the building.
  - A description of the fire and how it started (if known)

### BUILDING EVACUATION

1. All building evacuations will occur when an alarm sounds and/or upon notification by security/safety personnel. **DO NOT ACTIVATE ALARM IN THE EVENT OF A BOMB THREAT.**
2. If necessary or if directed to do so by a designated emergency official, activate the building alarm.
3. When the building evacuation alarm is activated during an emergency, leave by the nearest marked exit and alert others to do the same.
4. Assist the disabled in exiting the building! Remember that the elevators are reserved for persons who are disabled. **DO NOT USE THE ELEVATORS IN CASE OF FIRE. DO NOT PANIC.**
5. Once outside, proceed to a clear area that is at least 500 feet away from the building. Keep streets, fire lanes, hydrant areas and walkways clear for emergency vehicles and personnel. The assembly point is the sidewalk in front of the college on New York Avenue.
6. **DO NOT RETURN** to the evacuated building unless told to do so by College official or emergency responders.

### IF YOU HAVE A DISABILITY AND ARE UNABLE TO EVACUATE:

Stay calm, and take steps to protect yourself. If there is a working telephone, call 911 and tell the emergency dispatcher where you are **or** where you will be moving. If you must move,

1. Move to an exterior enclosed stairwell.
2. Request persons exiting by way of the stairway to notify the Fire Department of your location.
3. As soon as practical, move onto the stairway and await emergency personnel.
4. Prepare for emergencies by learning the locations of exit corridors and enclosed stairwells. Inform professors, and/or classmates of best methods of assistance during an emergency.

### HAZARDOUS MATERIAL SPILL/RELEASE

## EMERGENCY ACTION

1. Call 911 and report incident.
2. Secure the area.
3. Assist the injured.
4. Evacuate if necessary.

## TORNADO

### EMERGENCY ACTION

1. Avoid automobiles and open areas.
2. Move to a basement or corridor.
3. Stay away from windows.
4. Do not call 911 unless you require emergency assistance.

## SHELTER IN PLACE

### EMERGENCY ACTION

1. Stay inside a building.
2. Seek inside shelter if outside.
3. Seal off openings to your room if possible.
4. Remain in place until you are told that it is safe to leave.

## BOMB THREATS

### EMERGENCY ACTION

1. Call 911 and report incident.
2. If a suspicious object is observed (e.g. a bag or package left unattended):
  - Don't touch it!
  - Evacuate the area.

## TERRORISM AND ACTIVE SHOOTER SITUATIONS

### EMERGENCY ACTION

1. Call 911 and report intruder.

## RUN, HIDE OR FIGHT TIPS:

1. **Prepare** – frequent training drills to prepare the most effectively.
2. **Run and take others with you** – learn to stay in groups if possible.
3. **Leave the cellphone.**
4. **Can't run? Hide** – lock the door and lock or block the door to prevent the shooter from coming inside the room.
5. **Silence your cellphone** -- use landline phone line.
6. **Why the landline?** It allows emergency responders to know your physical location.
7. **Fight** – learn to “fight for your life” by utilizing everything you can use as a weapon.
8. **Forget about getting shot – fight!** You want to buy time to distract the shooter to allow time for emergency responders to arrive.
9. **Aim high** – attack the shooter in the upper half of the body: the face, hands, shoulder, neck.
10. **Fight as a group** – the more people come together, the better the chance to take down the shooter.
11. **Whatever you do, do something** – “react immediately” is the better option to reduce traumatic incidents.



