
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.

COURSE SYLLABUS, Spring 2018**General Science (SCIE102B)****Instructor Information:**

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

Course Information:

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| Course Time: | Lecture: Monday & Wednesday 6:00 – 7:30 PM Lab: Monday 7:45 – 9:15 PM |
| Classroom: | 336 |
| Prerequisites: | Must be concurrently enrolled in SCIE 102L. |
| Required Books and Materials: | An Introduction to Physical Science (Thirteenth Edition): Shipman, Wilson, and Higgins |

Learning Outcomes/ Competencies:

Students in this course will:

- Explain how scientific explanations are formulated, tested, and modified or validated.
- Distinguish between scientific and non-scientific evidence and explanations.
- Apply foundational knowledge and discipline-specific concepts to address issues or solve problems.
- Apply basic observational, quantitative, or technological methods to gather data and generate evidence based conclusions.

- Use current models and theories to describe, explain, or predict natural phenomena.
- Locate reliable sources of scientific evidence to construct arguments related to real world issues.

This course meets the following General Education objectives:

- 1) Students will, at an introductory level, read analytically, synthetically, and critically in a variety of genres.
- 2) Students will, at an introductory level, write in a variety of forms using valid logic, persuasive rhetoric, and correct grammar, usage, and punctuation.
- 3) Students can, at an introductory level, represent, apply, analyze, and evaluate relevant qualitative and quantitative mathematical and scientific evidence (i.e. equations, graphs, diagrams, tables, words) to support or refute an argument.
- 4) The student will, at an introductory level, be able to apply ethical standards to social issues and analyze their own core beliefs and the origin of these beliefs.

Course Description:

A 3-credit course. The course discusses the developments over the past four centuries in the areas of physics, chemistry, earth science, and space science, by some of the brightest minds on the planet. The concepts are often greatly simplified for the purpose of an introductory survey course, but understanding them will still require mental effort, flexibility, and preparation. In essence, our current civilization is so dependent on these physical sciences that their contribution has fallen into “the background” and is often taken for granted. This course will teach the student how to use theory to problem-solve and “think like a physical scientist” (e.g. quantitative reasoning and analysis). (This course is a CCSJ General Education option in Natural Sciences.) Prerequisites: Must be concurrently enrolled in SCIE 102L.

Learning Strategies:

Facilitated Learning, Student Centered Learning, Collaborative Learning, Lectures and Labs

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 | |

Assignments

Points possible

| | |
|---------------------------------------|-------------------|
| ~8 Lab performance (@ 25 points each) | 275 points |
| ~8 Homework Assignments (80 pt. max) | 80 points |
| ~8 quizzes (@ 10 points each) | 80 points |
| 2 Exams (@ 100 points each) | 200 points |
| Final comprehensive exam | 200 points |
| Total | 835 points |

In-Class Quizzes: There will be approximately 8 – 10 (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 8 – 12 (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

| Responsibilities | |
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| Attending Class | Required: 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 more responsibilities to keep up and meet the objectives of this course. |
| 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. |
| CCSJ Student Honor Code | 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"> • 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. |
| Using Electronic Devices | 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. |

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| Participating in Class | 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. |
| Doing Your Own Work | <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>PLEASE NOTE: All papers may be electronically checked for plagiarism.</p> |
| Tracking Your Progress | 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. |
| Sharing Your Class Experience | At the end of the term, you will have the opportunity to evaluate your 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! |
| Withdrawing from Class | : 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. |

| Resources | |
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| 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. |
| 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 | 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. |
| 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 . |

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.

Lecture Schedule

| Date | Topic | Chapter |
|---------|----------------------------|---------|
| Week 1 | Introduction/Measurements | 1 |
| Week 2 | Motion & Force | 2 & 3 |
| Week 3 | Work & Energy | 4 |
| Week 4 | Temperature & Heat | 5 |
| Week 5 | <i>Exam 1</i> | |
| Week 6 | Waves & Sound | 6 |
| Week 7 | <i>Spring Break</i> | |
| Week 8 | Optics and Waves Effects | 7 |
| Week 9 | Electricity and Magnetism | 8 |
| Week 10 | Atomic Physics | 9 |
| Week 11 | <i>Exam 2</i> | |
| Week 12 | The Chemical Elements | 11 |
| Week 13 | Chemical Bonding | 12 |
| Week 14 | Chemical Reaction | 13 |
| Week 15 | Review | |
| Week 16 | Final Exam | |

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.