

- ✓ explain the most fundamental observations and models developed in the process of scientific inquiry;
- ✓ evaluate the impact science has had on the human condition.

"To form habits of ordered inquiry, logical thinking, and critical analysis"

- ✓ analyze the reasons leading to specific ideas;
- ✓ evaluate the views of others based on appropriate evidence;
- ✓ use directly collected data or data given to construct knowledge by organizing (synthesizing, sequencing, or interpreting) the new information with previous background;
- ✓ critically review habitual assumptions in order to accommodate existing beliefs and assimilate new knowledge

If you have a question...

My office hours are posted on my door and will be announced in class. If these are not convenient, please talk to me about other possible times. I am willing to meet with students almost anytime, but prior arrangement helps me to insure that nothing else comes up to interfere with meeting a student. In addition, you are welcome to call me in my office or at home; both phone numbers are at the top of the syllabus. My email address is also listed at the top of this page.

Course Organization

This course uses as a unifying theme the two related topics of malnutrition and diabetes. Malnutrition, which literally means "badly nourished", encompasses more than undernutrition. An inadequate intake of protein, energy, and micronutrients can lead to a significant increase in diet-related medical problems such as obesity. And we now know that there is a very clear link between obesity and significantly increased risk for developing type 2 diabetes. Undernutrition and obesity are challenges that face many countries, including the United States.

Chemistry of Daily Life can be viewed as being organized in two halves. The first half introduces basic chemical concepts that will be important when we take a closer look at the chemistry of food and nutrition. The second half (starting around Spring Break) will use these chemical concepts to help you develop a better understanding of:

- how carbohydrates, fats, and proteins can serve as nutrients for the body
- what micronutrients are and why they are important
- food additives - their chemistry and regulation
- poisons, toxins, and risk assessment
- how new drugs are developed and approved

Classes/Readings/"Just-in-Time" Questions/Attendance and Class Participation

As part of your work for this class, you will be asked to read approximately 10-15 pages of material in the textbook for each class period. Your reading should focus on identifying new terms/definitions and developing a basic understanding of what they mean. The time we spend together in class will be focused on working with concepts, relationships between concepts, and the relationship between concepts and informed decision making. By coming into class already familiar to some extent with what new words you will hear, you free up more class time for us to work on new concepts and their relationship to both previous material and the decision making process.

To help give me a better understanding of which concepts students understand and which concepts are giving all of you difficulty, I will regularly ask you to complete what are best described as "Just-in-Time" assignments. These assignments, each involving a few questions, will be completed by you individually and submitted to me through the course Blackboard site by midnight the night before the next time the class will meet. I will look over these assignments and use the information I gain from this to fine-tune what we will do in class that period. In order for this feedback loop between out-of-class assignment and what we do during class to be effective, I can't accept late assignments of this type....period. No excuses, no explanations. I will do my best to design these assignments so that they less than 30 minutes (ideally around 20 minutes) for you to do. Assignments will sometimes be graded on effort alone, sometimes on the quality of the answer. There will be roughly 25 assignments of this type contributing to the total number of points allotted to this category. If a legitimate reason interferes with your ability to turn in a single assignment, it will have very little impact on your grade. Conversely, failure to turn in all the assignments will lower your overall course grade about half a letter grade.

You should plan on spending about 4-6 hours a week working on chemistry. It is to your advantage to spread this time out evenly over all the days in a week, rather than trying to spend 4-5 hours in a single day once a week.

I expect students to attend class regularly and to be on time. This is particularly important in this course, given its nature. I trust that students who miss class or are late will find out (from other students) or me what happened in class. Attendance can be a factor in your final grade. Excused absences (medical, family emergency) will not be penalized explicitly, although numerous excused absences will affect your performance on exams and homework projects. Absences when an exam is scheduled will require documentation (note from doctor, health center, or appropriate College administrator); exams must be made up within 72 hours. An exam missed because of an unexcused absence cannot be made up.

While class participation is not an explicit component of your grade in this course, student who are active involved on a regular basis in class and are on the border between two grades will receive the higher of the two possible grades.

Exams/Group Final Project/Quizzes/Other Graded Work

There will be four in-class exams during the semester, each worth 100 points each. Tentative dates for the exams are given at the end of this syllabus; each exam will cover three or four chapters.

Instead of a final exam at the end of the semester, you will be required to make a 20 to 25 minute group presentation on a topic related to chemistry. You will be provided with a list of possible topics; the deadline for when to submit your group's choice of topic will be decided by the class. Groups are free to choose topics that don't appear on the list. You will be required to find current articles (print and Internet) for use as reference material for this presentation. A week before the presentation each group will be required to hand in a bibliography of sources found to date, and an outline will be handed in at the time of the presentation.

Throughout the semester there will be short announced quizzes at the end of many of the chapters. Each quiz will be worth 20 points; the five highest quizzes will count towards your final grade. Quizzes will be based in part on questions at the end of each chapter that I will recommend you answer.

There will be several small projects that students will complete during the semester. More information about each project will be given out in class. These small projects, along with the "Just-in-Time" questions, will be worth a total of 100 points towards your final grade.

SENCER and the Personal Project

This course is part of Saint Vincent College's involvement in a larger science education reform project, Science Education for New Civic Engagements and Responsibilities (SENCER for short), that has been funded by the National Science Foundation.

SENCER seeks to:

- connect science and civic engagement by teaching “to” basic science “through” complex current and unsolved public issues
- show the power of science by identifying the dimensions of a public issue that can be better understood with certain mathematical and scientific ways of knowing
- invite students to put scientific knowledge and scientific method to immediate use on matters of importance
- extract from immediate issues, the larger, common lessons about scientific processes and methods
- encourage student engagement with civic questions that require attention now, and helps students understand the interdisciplinary nature of these questions

To help you make connections between the scientific concepts we examine in class and the broader civic questions they relate to, each of you will be asked to complete a personal project. That project can be one of several different things - helping Campus Ministry with their organization of the Oxfam Fast for a World Harvest, helping Campus Ministry with their “Nights on the Boulevard” feeding ministry to homeless individuals in Pittsburgh, working with the Wellness Center to create/promote a diabetes or overweight/obesity education event, etc. Student ideas for personal projects are welcome. As part of this project, you will be asked to keep a log of the time you spend working on it, and at the project's end you will write a short reflection paper that will focus on what you learned from the experience and what connections you see between your project and topics we've covered in the course. More information on the personal project will be given out later in the semester.

Grade Summary

4 in-class exams (100 points @)	400 points
group presentation	100 points
quizzes (20 points @, five best scores)	100 points
personal project	50 points
JiTT, small projects	100 points

Total

750 points

Final grades will be determined from the grading scale found in the College Bulletin

Academic Honesty and Disabilities

St. Vincent College has an academic honesty policy, found on page 32 of the College *Bulletin*, that this course will adhere to. Please refer to the *Bulletin* for details.

Students with disabilities are eligible for reasonable and appropriate accommodations in this course. If you have a legitimate disability that hinders your academic performance, then it is your responsibility to make an appointment with the instructor to negotiate the accommodations you require.

The schedule included in this syllabus, course policies regarding attendance and class participation, and assignments are subject to change in the event of extenuating circumstances or by mutual agreement between the instructor and the students.

In case of adverse weather, I will post an announcement on the course Blackboard site and leave a recording in my office by 8 am that day. If there is nothing on the Blackboard site **and** no message on my voicemail, then you should assume that class is being held.

IMPORTANT DATES

January 18	Last day to add/change courses
January 25	Last day for withdrawal without permanent record ("W" on transcript)
March 14	Withdrawals on this date or later are "WF"

SUGGESTIONS FOR SUCCESS IN THIS COURSE

1. Read the assigned section of the text the day before the class where this material will be discussed. Allow plenty of time for this, so that you can read slowly and thoughtfully.
2. Read to find out "why?" in addition to "what?" in order to be an effective student.
3. Attend class regularly; rarely or never be late.
4. Sit near the front of the class, so that you feel like a participant, not merely a passive observer.
5. Take notes on virtually EVERYTHING that is said, discussed, or put on the board in class.
6. Find time to review your notes on the same day that you take them, to make sure that you understand what you wrote and to identify anything that is confusing or not clear.

7. Ask questions in class until the concept under discussion is clear in your mind. This also helps you feel a part of the class, instead of an observer watching others learn.
8. Set up your schedule so that you are able to devote approximately one hour each day to working on chemistry. This time can be used for reading the text, reviewing notes, and/or working on problems.
9. As you work on understanding new concepts, be sure to take time and identify how new ideas fit in with material that you learned earlier.
10. Work on problems in the text **after** you have developed a solid understanding of the concepts involved in the problems. When working on problems, only go back and use the text or solutions manual as an aid when you are unable to answer the questions after several attempts.
11. Organize a study group of 3 or 4 friends with whom you review class material 2 or 3 days prior to the exam.
12. Get a good night's sleep (7 or 8 hours) prior to the day of the exam.

TENTATIVE SCHEDULE OF TOPICS FOR CHEMISTRY 107

<u>Dates</u>	<u>Topics</u>
Jan. 10	Introduction
Jan. 12	Chapter 1 - An Introduction to Chemistry
Jan. 14	Chapter 2 - Atoms and Elements
Jan. 17, 19, 21	Chapter 3 - Chemical Bonding
Jan. 24, 26, 28	Chapter 6 - Introduction to Organic Chemistry
Jan. 31, Feb. 2, 4	Chapter 9 - Arithmetic of Chemistry
Feb. 9, 11	Chapter 10 - Acids and Bases
Feb 14, 16, 18	Chapter 8 - Working with Chemistry (Food Fuel Energy)
Feb 21-25	NO CLASS - SPRING BREAK
Feb. 28, March 4, 7	Chapter 15 - Fats and Oils
March 9, 11, 14	Chapter 16 - Carbohydrates
March 16, 18, 21	Chapter 17 - Proteins
March 23-29	EASTER VACATION
April 1, 4, 8	Chapter 18 - The Chemistry of Heredity
April 11, 13	Chapter 19 - Vitamins, Minerals, and Additives
April 15, 18	Chapter 20 - Poisons, Toxins, Hazards, and Risks
April 20, 22, 25, 27	Chapter 23 - Medicines and Drugs
Tuesday, May 3, 4 - 6 PM	GROUP PRESENTATIONS

EXAMS

February 7 Chapter 1, 2, 3, 6
March 2 Chapter 9, 10, 8
April 6 Chapter 15, 16, 17
April 29 Chapter 18, 19, 20, 23