# CH 116, General Chemistry II, Spring 2023

Schafer School of Engineering and Sciences

TENTATIVE Course Syllabus for this coordinated course...Any changes will be posted on this

## Course Schedule & Zoom Links by section:

| Lecture | Time | Instructor | Room Assignment | Course Assistants |
|---|---|---|---|---|
| A | MWF 8-8:50 AM | Dr. Jeffrey Raab | **EAS 230** | Helen Varughese<br>hvarughe@stevens.edu |
| B | MWF 9-9:50 AM | Dr. Rahul Khade | **EAS 230** | Mihika Shah, mshah91@stevens.edu<br>Breanna Tolocka, btolocka@stevens.edu |
| C | MWF 10-10:50 AM | Dr. Patricia Muisener | **EAS 230** | Helen Varughese hvarughe@stevens.edu<br>Sarah Pasqualetto spasqua1@stevens.edu |
| D | MWF 11-11:50 AM | Dr. Jeffrey Raab | **EAS 230** | Laura Masciola lmasciol@stevens.edu<br>Gillian Reinhardt greinhar@stevens.edu |
| F | MWF 12-12:50 PM | Dr. Rahul Khade | **Burchard 103** | Michella Chiaramonte mchiara1@stevens.edu<br>Anastasia Ivanov aivanov@stevens.edu |
| S | MWF 11-11:50 PM | Dr. Anju Sharma | **Babbio Center 310** | Julia Zatyko<br>jzatyko@stevens.edu |

**(*) NOTES:**

- **You must attend your assigned lecture to receive credit**

## Instructor Contact Information and Virtual Office Hours.

| Name | Email | Sections | In person or Zoom Office Hours | Zoom Office Hours Link |
|---|---|---|---|---|
| Dr. Patricia Muisener | pmuisene@stevens.edu | C<br>**Course Coordinator** | Office: McLean 511D<br>Monday 2-3<br>Wednesday 11-12 and by appointment | Dr. Muisener's Office Hours |
| Dr. Jeffrey Raab | jraab@stevens.edu | A, D | Office: McLean 431<br>Monday 9-10<br>Tuesday 11-12<br>and by appointment | Dr. Raab's Office Hours |
| Dr. Anju Sharma | asharma@steven.edu | S | Office: McLean 313<br>Thursday 11-12 and by appointment | Dr. Sharma's Office Hours |
| Dr. Rahul Khade | rkhade@stevens.edu | B, F | Office EAS 410<br>Monday 11-12, Wednesday 10-11 and by appointment | Dr. Rahul Khade Office Hours |

(*) NOTE: All instructors are available for office hours via appointment as well. Please email your instructor when you want to meet, with several dates/times to meet if the ones listed above do not work for you.

CH 116 COURSE ASSISTANTS: Students who have taken chemistry previously, are assigned to sections of CH 116 to help facilitate. Listed below are the course assistants, the section assigned and email

Review sessions information will be posted starting in week 2

| Name | Email | Sections | Review Session Lead | Zoom Link |
|---|---|---|---|---|
| Helen Varughese | hvarughe@stevens.edu | A, C | | |
| Mihika Shah, | mshah91@stevens.edu | B | | |
| Breanna Tolocka, | btolocka@stevens.edu | B | | |
| Sarah Pasqualetto | spasqua1@stevens.edu | C | | |
| Laura Masciola | lmasciol@stevens.edu | D | | |
| Gillian Reinhardt | greinhar@stevens.edu | D | | |
| Michella Chiaramonte | mchiara1@stevens.edu | F | | |
| Anastasia Ivanov | aivanov@stevens.edu | F | | |
| Julia Zatyko | jzatyko@stevens.edu | S | | |
| Bryn Kangy | | Course Support | | |

Canvas Course Address: https://sit.instructure.com/courses/64509

Prerequisite(s): General Chemistry I lecture and lab, CH 115 and CH 117

Corequisite(s):General Chemistry II lab, CH 118

Cross-listed with: None

# COURSE DESCRIPTION

This course is an introduction to important concepts and principles of chemistry with a focus on the following topics: chemical kinetics; properties of solutions; chemical equilibrium; acids and bases; acid base equilibrium, polyprotic acids, buffers, titrations, indicators, salts; solubility and complex ion equilibria; chemical thermodynamics: entropy, free energy and spontaneity; electrochemistry: balancing oxidation reduction reactions, galvanic cells, electrolysis; nuclear chemistry, nuclear energetics and radioactivity; the representative elements; transition metals and coordination chemistry

# STUDENT LEARNING OUTCOMES

**After successful completion of this course, students will be able to:**

1. Be able to predict:

(a) How fast a reaction will happen (KINETICS)

(b) How far a reaction will progress (EQUILIBRIUM)

(c) If a reaction will happen (THERMODYNAMCIS)

2. Describe and explain general factors that affect the extent to which chemical reactions occur and their rates in relation to the following topics: Chemical Kinetics, Chemical Equilibrium, Free Energy and Thermodynamics, Acids and Bases, Aqueous Ionic Equilibria, and Electrochemistry.
3. Use conceptual and mathematical models to make reasonable and accurate predictions about the effects of multiple variables related to the above topics on the extent and rate of chemical reactions.
4. Describe and explain the relationship between structure and reactivity in relation to the topics listed above and Radioactivity and Nuclear Chemistry
5. Develop and use teamwork abilities (among them communication).
6. Develop interest in science, and in learning science and about science, and gain an appreciation of scientific literacy for its impact on society.
7. Develop critical thinking and problem-solving skills as applied to chemistry and science in general.
8. Be able to identify important resources for your own subsequent learning.

**Outcomes or Skills to Master:**

For each topic a list of outcomes (learning tasks or things you should be able to do) will be posted as the first slide in each of the week's material so that you can gauge your mastery of the materials and skills covered in CH 116.

# COURSE FORMAT AND STRUCTURE

**COURSE OVERVIEW:**

**This course is a coordinated course with one central Canvas website. Class sessions will take place in real time three days a week M, W, F for 50 minutes at your regularly scheduled time.**

**You must attend your assigned section at your specific time In person to receive credit.**

Please note class time and slides are **not** envisioned to summarize the content of the textbook or substitute independent study of the material. To fully take advantage of class, learn the material and succeed, you will need to **review the content covered before class, which can include doing the assigned reading, watching videos or reviewing notes and answering question.**

Class time will be used to discuss those aspects of the material that may be more challenging, and to address students' questions and comments.

**The design of this course is intended to create a collaborative learning environments where participants will interact and work together in small groups (2-4 members) for periods of time during most class meetings,** Besides being an effective learning strategy, group work in this class counts towards your In-Class Assignments grade. It is important that you participate actively during class.

This course is **not** graded on a curve so your performance is NOT being judged against anyone else in the class. You need to develop proficiency in understanding chemistry and your grade is based on how well you meet the course objectives. Since will be working in groups throughout the semester you should strongly consider finding one or more people you want to study with outside of class. Research on learning shows that students who study together often get higher grades than students who study alone. **Studies also show that learning occurs through regular practice of material, use the homework, quizzes and class assignments as a way to practice and learn the material.**

## Course Logistics

To access the course, please visit stevens.edu/canvas

Links to an external site. https://sit.instructure.com/courses/64509) For more information about course access or support, contact the TRAC by calling 201-380-6599 or 201-216-5500.

You are responsible for checking this site frequently to receive announcements and receive instructions concerning the assignments Here you will also find the syllabus; regularly updated schedule; lecture notes; lecture note outlines, preclass worksheets, preclass notes, videos, skills to master for each exam; the exam answer keys; your grade; email addresses to communicate with the instructors and other students in your class; useful links; among other things.

**COMMUNICATION: Please read all announcements posted on Canvas and any emails your instructor sends to you.** When you send an e-mail to ask a question use your Stevens e-mail address to avoid problems with the junk email filter.

**For questions about quizzes you can send emails via Canvas to your instructor and Dr. Muisener. For all other matters, use your Stevens email and not Canvas.** ***Expect responses to e-mail within 48 hours at the latest.*** Please keep in mind if you email Friday night or over the weekend you may not receive a response until Tuesday. When emailing, please place in the subject line the course number/section and the topic of the email (i.e. **CH 116 A , Mastering Chem week 1**).

**For quizzes or assignments, please do not post comments with questions within the assignment as we do not usually/regularly review them. INSTEAD, send an email with screen shots where appropriate.**

**General Course Policies:**

- BE PREPARED and ON TIME for the class! Study and review course materials before class!
- Be prepared to use the response system (Poll Everywhere) in class and submit answers only for yourself.
- Participate actively and ask questions during class if you don't understand something, can't hear, etc.
- Be respectful of others in class and help create a pro-learning environment.
- Please raise your hand in class when asking questions.
- Do not disrupt the class. If any disruptions continue to occur the student will be asked to leave the class and will not receive points for the day.
- When working in groups, actively participate with your group members

**Make use of the Instructor office hours and Review sessions available. Feel free to visit the instructors and contact the course assistants when you have questions or need additional help!!!**

# COURSE MATERIALS

Recommended Textbook(s):

Chemistry A Molecular Approach, Sixth Edition, by Nivaldo J. Tro, Publisher Pearson

Other Textbook for Reference:

Chemistry 2e, Open Stax https://openstax.org/details/books/chemistry-2e (Links to an external site.)

Links to an external site.

**Required Mastering Chemistry access to the Pearson text Chemistry A Molecular Approach 6th edition by Nivaldo Tro.** You cannot purchase code through a third party source or use a code from the year before.

If you purchased a 24 month access code for CH 115 you should be all set for CH 116 and should not need to purchase anything. If you are prompted to purchase something, let us know immediately.

**You need to register with your code from the Stevens bookstore and/or purchase through the Mylab and Mastering link in the CH 116 Canvas site ONLY** in order to be registered for the correct Mastering Chemistry. ***If you are asked to provide a Course id, something is wrong with your registration, first contact Pearson technical support (link) for help and then if you are still stuck email your instructor/Dr. Muisener.***

**Purchase Options for Required Mastering Chemistry Online access and Recommended Textbook: Chemistry A Molecular Approach 6th Edition by Nivaldo Tro listed on the Canvas site.**

Note: This is the same text and homework system that was used in General Chemistry I, CH 115

**REQUIRED CALCULATORS:** You will need a working graphing or scientific calculator (any model) that you know how to use in class and on the exams. You cannot use a calculator on your phone or computer.

**Required Response System:** Poll Everywhere. There is nothing you need to purchase for this. It is the same system used in CH 115. Make sure you have registered for an account

# COURSE REQUIREMENTS

**CLASS GRADE: Attendance and participation is strongly encouraged.** The only way to earn In-class assignment points is by attending and participating. To receive credit you must attend the section that you are assigned to. **Work done on in class assignments cannot be made up and you will receive a set number of points if you complete the assignments in their entirety. The class grade will consist of the following:**

**Pre Class Worksheets,** which will post on Canvas by Friday and will be due the following Friday at 8 AM. To complete these worksheets you need to read the assigned sections of the text, review the notes posted on Canvas and/or watch the videos. **These worksheets need to be uploaded to Canvas by 8 AM on Friday to receive credit.** Only handwritten worksheets, NO typed worksheet, will be accepted. **UPLOAD FILES AS PDF ONLY.** Each worksheet will be worth 5 to 10 points

**In-class Group and Independent worksheets** that will be submitted during class. Answers to the worksheets will be available on Canvas after the week has ended. Each worksheet will be worth 5 to 10 points and the points will be noted. Group participation will be monitored and strongly encouraged. If students are not actively participating in group discussion throughout the entire class, points may be deducted at the discretion of the instructor, **Worksheets are meant to be done only in class and will open and close on the hour. However, assignment will be available until 11:59 PM. for submission. DO NOT EMAIL YOUR FILE UPLOADS TO THE INSTRUCTORS OR COURSE ASSISTANTS. If the assignment is closed you may upload in the comments section and then contact your instructor. Submit only pdf files. Note: you will receive NO CREDIT if you upload files other than pdf.**

**Attendance:** Class attendance will be taken within the first 10 minutes or last 10 minutes of class. If you do not have an excused absence and are not present when attendance is taken you will not receive credit for being present. Attendance is part of the class grade.

**In-class questions:** Questions will be asked during class on the material covered for that day. **You will earn full points for answering at least 80 % of the questions for 5 or more question or 1/2, 2/3 or 3/4 for less than five questions for each day of the week (Monday and Wednesday). If you answer less than 80% when there are more than 5 question or less than the following 1/2, 2/3, or 3/4 you will not receive points, NO EXCEPTIONS. Each week in class questions will be worth 10 points (5 points/day) except when noted otherwise.**

NOTE: If you have an **EXCUSED ABSENCE**, the points you miss in class will not count against you and you do not need to submit the in class assignments. However, you are strongly encouraged to review all assignments and notes, which are posted on Canvas. **To receive an excused absence you need to** e-mail your Instructor and ONLY your instructor with your documentation ASAP **Approved excused absences include:** documented illness, deaths in the immediate family and other documented crises, call to active military duty, court-imposed legal obligations (jury duty, subpoenas), religious days, special requirements of other courses and university sponsored events.

**NOTE: employment schedules , oversleeping and athletic training/practice schedules are not valid excuse for absences.**

**REQUIRED HOMEWORK FROM RECOMMENDED TEXTBOOK**

Modified Mastering Chemistry/MyLab, Publisher: Pearson, Online Interactive Homework connected to the recommended textbook by Tro. Cannot purchase code through a third party source or use a previously code from the year before. First week of class, **Need to register and/or purchase through the Mylab and Mastering link in Canvas** in order to be registered for the correct Mastering Chemistry. You do not need a course id to register if you go through Canvas. Weekly graded homework problems will be administered through the Mastering Chemistry online homework system. The homework will release Friday morning and will be due more than a week later, the following Tuesday at midnightand you will have 6 attempts to complete each question. Some of the questions will be practice or extra credit questions and will be noted as such. The homework will be synced to Canvas and you will see the assignment when it releases and your grade will regularly update (can take 24-48 hours sometimes) until you submit assignment. **NOTE: there are sometimes syncing delays with Mastering, your grade in Mastering is always the accurate one. Late assignments for homeworks at 2% per day will be accepted.**

After you have submitted the assignment, it will be marked past due, the assignment will be available for you to practice, but you will not receive extra points.

If you have an excused absence for a long time period, you can discuss with the instructor an excuse for a particular assignment so the points do not count against you.

**QUIZZES** There will be weekly online Canvas quizzes and quizzes occasionally during class. The weekly online quizzes will release Friday at 3PM and be due Tuesday at 11:59AM (except where indicated) and will focus on the material covered that week. You will usually have two attempts to complete each quiz and only the highest score will count.

**EXAMS Four one hour semester exams** offered during the Quiz period, Tuesday 5:00-6:00 PM EST on Canvas and **in person**

Exam 1: Tuesday, February 7, from 5:00-6:00 PM EST on Canvas

Exam 2: Tuesday, March 7 from 5:00-6:00 PM EST on Canvas

Exam 3: Tuesday, April 18, from 5:00-6:00 PM EST on Canvas

Final Exam: TBA during final exam period on Canvas

Semester Exams:

- Exams consist of typically 18 total questions: multiple choice, fill in the blank and short answer/problem solving questions. Material for exams taken from class, problems worked in class, worksheets, end of chapter problems, and homework assignments.
- For the exams, you have the option to use **ONE SIDED** handwritten sheet of notes on a cover page distributed in class. You will submit this with the exam.

  **FOR THE EXAM YOU NEED TO submit your work in the exam period.**

- After each exam, exam grades will be posted on Canvas by the following Tuesday at the latest.
- Previous exams will be available on Canvas. Exam review question assignments will be posted a week prior to the first three exams
- **Exam Review sessions sponsored by the Instructors and Academic Support Center (ASC)**
- Review Exam 1: Dates and times TBA
- Review Exam 2: Dates and times TBA
- Review Exam 3: Dates and Times TBA

**Make up Exams for an approved excused exam absence**. **A student wishing to take the make-up exam for an approved excused absence need to email the instructor and *Dr. Muisener (course coordinator) if at all possible the day before the exam*. It is the student's responsibility to contact to make the arrangements. NOTE:** Reasons for approved absences and the procedure are listed above.

**Make up exams for semester exams will normally be given the following Thursday (or Tuesday by special arrangement) from 5:00-6:00 PM EST. Please coordinate with the instructors.**

**(Makeup Exam dates for semester exams: exam 1: 2/9; exam 2: 3/9; exam 3: 4/20)**

**NOTE:** If you cannot take the make up exam at this time, you need to provide an excuse and the exam will be scheduled during the final exam period (most likely same day as final or day after).

**Final exam is mandatory and comprehensive.** The final exam will likely consist of two exams: the ACS Exam and an exam similar to the semester exam written by the instructors.

**Missing the final constitutes a failing grade in the class.** If you have an approved excused absence OR a conflict with another final exam, you will be able to make up the final exam AFTER the scheduled date. **You need to contact your instructor and Dr. Muisener, the course coordinator to schedule the final exam as soon as you as you are aware of the conflict.**

- ***Extensive absences in the lectures or exams may result in a failing grade***

**PROJECT**

A project will be incorporated into this course for the entire semester. You will pick a scientific topic to research AND choose at least one area of general chemistry. You will use a literature searching tool, such as Web of Science, SciFinder, Scopus, etc. Information and links will be provided on Canvas to help you get started! You will need to find at least two peer reviewed journal articles that discuss an area of scientific research and you will discover how general chemistry concepts or principles were applied to this research. You will write at least a 1,000 word paper that details the scientific research of a topic of your choice and the connections to at least one general chemistry concept. You need to cite your sources and include at least two peer reviewed references. You will also make a 4-6 minute group video that discusses your group topic as a whole and its connection to a general chemistry concept. You will work on the project in phases and there will be short assignments throughout the semester (counting towards homework) as detailed on Canvas. More information will be posted on Canvas.

# GRADING PROCEDURES

Grades will be based on the following:

| | |
|---|---|
| Class grade: | |
| Pre-class worksheets, in class group worksheets, In class questions /attendance (Poll Everywhere) | **14 %** |
| Homework (include Project preparation assignments) | **14 %** |
| Weekly Quizzes (on Canvas) | **12 %** |
| Three one-hour exams (each worth 10%) | **30 %** |
| Project: Paper and Video | **10 %** |
| Final exam | **20 %** |

**GRADING SCALE:** Tentative Percentages and grades are shown below. If there are any modifications, it will only be to improve grades and will post on Canvas. Note: No grades will be rounded up and any modification to the scale will be done for the entire class.

A (100-93.00%), A- (92.99-90.00%), B+(89.99-87.00%), B(86.99-83.00%), B- (82.99-80.00%), C+(79.99-77.00%), C(76.99-73.00%), C- (72.99-70.00%), D+ (69.99 to 67.00%), D (66.99 to 60.00%), F< 59.99%

## Late Policy

Mastering Chemistry homework can be submitted late but you will receive a deduction of 2% per day.

**Quizzes, Preclass worksheets (due at 8AM on Fridays) and Group worksheet assignments (note: available until 11:59PM on the day of the due date) will not be accepted after the 11:59PM deadline for any reason! Note: Pre-class and Group worksheet ssignments will be excused with an excused absence. Quizzes and homework are not normally excused.**

**TUTORING AND SEEKING HELP WITH MATERIAL:**

The advice for General Chemistry II is to keep up with the material. Read the pre class notes, do the homework on time, come to class prepared complete the preclass worksheets actively participate, ask questions and understand and complete the in-class worksheets. **If you are struggling with any material, go to Office Hours and talk to your instructor and course assistant.** Also, there are tutors available through the Academic Support Center (https://www.stevens.edu/directory/undergraduate-academics/academic-support-center

Links to an external site. ). There will be review sessions scheduled before each exam, as noted on Canvas and you are encourage to attend them.

**RELIGIOUS OBSERVANCES/UNIVERSITY ACTIVITIES:** Students who anticipate the necessity of being absent from class due to a major religious observance or an approved university activity should send an email directly to their instructor.. Follow-up documentation may be required.

# TECHNOLOGY REQUIREMENTS

## Baseline technical skills necessary for online courses

- Basic computer and web-browsing skills
- Navigating Canvas

## Technology skills necessary for this specific course

- Live web conferencing using Zoom
- Recording a slide presentation with audio narration
- Recording, editing, and uploading video via Panopto

## Required Equipment

- Computer: current Mac (OS X) or PC (Windows 7+) with high-speed internet connection
- Webcam: built-in or external webcam, fully installed
- Microphone: built-in laptop or tablet mic or external microphone

### Required Software

- Current or first previous major release of Chrome, Firefox, Edge, or Safari browser
- Microsoft Word, Excel, PowerPoint

### Academic Integrity

### Undergraduate Honor System

Enrollment into the undergraduate class of Stevens Institute of Technology signifies a student's commitment to the Honor System. Accordingly, the provisions of the Stevens Honor System apply to all undergraduate students in coursework and Honor Board proceedings. It is the responsibility of each student to become acquainted with and to uphold the ideals set forth in the Honor System Constitution. More information about the Honor System including the constitution, bylaws, investigative procedures, and the penalty matrix can be found online at http://web.stevens.edu/honor/

Links to an external site.

The following pledge shall be written in full and signed by every student on all submitted work (including, but not limited to, homework, projects, lab reports, code, quizzes and exams) that is assigned by the course instructor. No work shall be graded unless the pledge is written in full and signed.

***"I pledge my honor that I have abided by the Stevens Honor System."***

Reporting Honor System Violations

Students who believe a violation of the Honor System has been committed should report it within ten business days of the suspected violation. Students have the option to remain anonymous and can report violations online at www.stevens.edu/honor

Links to an external site..

# EXAM CONDITIONS

The following procedures apply to quizzes and exams for this course. As the instructor, I reserve the right to modify any conditions set forth below by printing revised Exam Conditions on the quiz or exam.

1. Students may use the following materials during quizzes and/or exams. Any materials that are not mentioned in the list below are not permitted.

| Material | Permitted? | |
|---|---|---|
| | Yes | No |
| Handwritten Notes<br><br>8 1/2 x 11 single sided sheet<br><br>Coverpage | X | |
| Textbooks/Online Sources | | X |
| Other (specify): calculator (scientific or graphing) | X | |

2. Students are/are not allowed to work with or talk to other students during quizzes and/or exams.

## LEARNING ACCOMMODATIONS

Stevens Institute of Technology is dedicated to providing appropriate accommodations to students with documented disabilities. The Office of Disability Services (ODS) works with undergraduate and graduate students with learning disabilities, attention deficit-hyperactivity disorders, physical disabilities, sensory impairments, psychiatric disorders, and other such disabilities in order to help students achieve their academic and personal potential. They facilitate equal access to the educational programs and opportunities offered at Stevens and coordinate reasonable accommodations for eligible students. These services are designed to encourage independence and self-advocacy with support from the ODS staff. The ODS staff will facilitate the provision of accommodations on a case-by-case basis.

For more information about Disability Services and the process to receive accommodations, visit https://www.stevens.edu/office-disability-services

Links to an external site.. If you have any questions please contact: Phillip Gehman, the Director of Disability Services Coordinator at Stevens Institute of Technology at pgehman@stevens.edu or by phone 201-216-3748.

**Disability Services Confidentiality Policy**

Student Disability Files are kept separate from academic files and are stored in a secure location within the Office of Disability Services. The Family Educational Rights Privacy Act (FERPA, 20 U.S.C. 1232g; 34CFR, Part 99) regulates disclosure of disability documentation and records maintained by Stevens Disability Services. According to this act, prior written consent by the student is required before our Disability Services office may release disability documentation or records to anyone. An exception is made in unusual circumstances, such as the case of health and safety emergencies.

## INCLUSIVITY

**Name and Pronoun Usage**

As this course includes group work and class discussion, it is vitally important for us to create an educational environment of inclusion and mutual respect. This includes the ability for all students to have their chosen gender pronoun(s) and chosen name affirmed. If the class roster does not align with your name and/or pronouns, please inform the instructor of the necessary changes.

**Inclusion Statement**

Stevens Institute of Technology believes that diversity and inclusiveness are essential to excellence in academic discourse and innovation. In this class, the perspective of people of all races, ethnicities, gender expressions and gender identities, religions, sexual orientations, disabilities, socioeconomic backgrounds, and nationalities will be respected and viewed as a resource and benefit throughout the semester. Suggestions to further diversify class materials and assignments are encouraged. If any course meetings conflict with your religious events, please do not hesitate to reach out to your instructor to make alternative arrangements.

You are expected to treat your instructor and all other participants in the course with courtesy and respect. Disrespectful conduct and harassing statements will not be tolerated and may result in disciplinary actions.

## MENTAL HEALTH RESOURCES

Part of being successful in the classroom involves a focus on your whole self, including your mental health. While you are at Stevens, there are many resources to promote and support mental health. The Office of Counseling and Psychological Services (CAPS) offers free and confidential services to all enrolled students who are struggling to cope with personal issues (e.g., difficulty adjusting to college or trouble managing stress) or psychological difficulties (e.g., anxiety and depression). CAPS is open daily from 9:00 am – 5:00 pm M-F. Evening hours are available by

appointment in the Fall / Spring semesters and up-to-date information regarding the availability of evening appointments can be found by visiting www.stevens.edu/CAPS

Links to an external site.. To schedule an appointment, call 201-216-5177.

Due to the pandemic, in-person appointments may be limited until further notice. Up-to-date information about the availability of in-person services can be found at www.stevens.edu/CAPS

Links to an external site.. Teletherapy (therapy via secure video platform) is available to registered students physically located in the states of New York or New Jersey. Students located outside of NY / NJ are encouraged to pursue local treatment through their personal health insurance. To learn more about the process of finding a therapist please visit the CAPS webpage on Seeking Help Off-Campus

Links to an external site..

## EMERGENCY INFORMATION

In the event of an urgent or emergent concern about the safety of yourself or someone else in the Stevens community, please immediately call the Stevens Campus Police at 201-216-5105 or on their emergency line at 201-216-3911. These phone lines are staffed 24/7, year round. For students who do not reside near the campus and require emergency support, please contact your local emergency response providers at 911 or via your local police precinct. Other 24/7 national resources for students dealing with mental health crises include the National Suicide Prevention Lifeline (1-800-273-8255) and the Crisis Text Line (text "Home" to 741-741). If you are concerned about the wellbeing of another Stevens student, and the matter is *not* urgent or time sensitive, please email the CARE Team at care@stevens.edu. A member of the CARE Team will respond to your concern as soon as possible.

# TENTATIVE COURSE SCHEDULE TENTATIVE COURSE SCHEDULE

**Spring 2023** ***Any changes to this schedule will be announced in class and posted on Canvas***

| Week | Date | Session | Chapter | Topic |
|---|---|---|---|---|
| 1 | Wed. Jan 18 | 1 | 15 | Introduction; discuss course syllabus and structure; ***Chapter 15 "Chemical Kinetics"*** 15.2 to 15.4 Reaction Rates and Rate Laws |
| | Fri., Jan 20 | 2 | 15 | 15.4 Integrated Rate Laws and Group worksheet Week 1 on "Chemical Kinetics" |
| **First Pre-class worksheet and Syllabus quiz due Friday, Jan 20 at 8AM<br>By Tuesday Jan 24 at 11:59PM , Complete survey and diagnostic quiz on course on Canvas site,<br>Online Quiz week 1 releases Friday at 3 PM and due Tuesday Jan 24 at 11:59PM<br>Mastering Chemistry Homework Set 1: week 1 and 2 due Tuesday Jan 31 at 11:59PM** | | | | |
| **2** | Mon., Jan 23 | 3 | 15 | 15.4 to 15.5 Integrated Rate Laws and Temperature Dependence |
| | Wed., Jan 25 | 4 | 15 | 15.6 to 15.7 Reaction Mechanisms and Catalysis |

| | | | | |
|---|---|---|---|---|
| | Fri., Jan 27 | 5 | 15 | Group Worksheet Week 2: Kinetics and Introduction to Solutions/Concentrations |

Pre-class worksheet 2 due Friday Jan 27 at 8AM
Mastering Chemistry Homework Week 1 and 2 due Tuesday Jan 31 at 11:59 PM
Online Quiz week 2 Releases Friday Jan 27 at 3pm on Canvas and due Tues. Jan 31 at 11:59 PM

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|---|---|---|---|---|
| **3** | Mon. Jan 30 | 6 | 14 | ***Chapter 14 "Properties of Solutions"*** 14.2 to 14.5 Solution Composition and Formation, Solubility, Vapor pressure |
| | **Mon., Jan 30 Last Day to Add/Drop for 90% refund and without a W** | | | |
| | Wed., Feb. 1 | 7 | 14 | 14.5 to 14.8 Vapor Pressure, Colligative Properties/Colloids |
| | Fri., Feb. 3 | 8 | 14 | Group Worksheet Week 3: Solubility, Vapor Pressure, Colligative Properties |

Pre-class worksheet 3 due Friday Feb 3 at 8AM
Mastering Chemistry Homework Set 3 Tues. Feb. 7 at 11:59 PM
Online Quiz week 3 releases Friday Feb 3 at 3PM and due Tues. Feb. 7 at 11:59 PM

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|---|---|---|---|---|
| **4** | Mon., Feb. 6 | 9 | 16 | ***Chapter 16 "Chemical Equilibrium"*** 16.1 to 16.4 Chemical Equilibrium |
| | **Tue., Feb 7** | **5:00-6:05 PM** | | **EXAM 1 Chapters 15 and 14** |
| | Wed., Feb. 8 | 10 | 16 | Changes in Equilibrium 16.5 to 16.7 |
| | Fri., Feb. 10 | 11 | 16 | Group Worksheet Week 4: Chemical Equilibrium |

Pre-class worksheet 4 due Friday Feb. 10 at 8AM
Mastering Chemistry Hmwk. Set 4 due Tues. Feb. 14 at 11:59 PM
Online Quiz week 4 releases Friday, Feb. 10 at 3 PM and due Tue Feb 14 at 11:59 PM

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| **5** | Mon Feb 13 | 12 | 16 | Review Chemical Equilibrium Le Chatelier's Principle |
| | | | 17 | ***Chapter 17 Acids and Bases*** 17.1 to 17.3 Acids and Bases |
| | Wed. Feb 15 | 13 | 17 | 17.4 to 17.6, Acid Strength, and the acid ionization constant |
| | Fri., Feb 17 | 14 | 17 | Group Worksheet Week 5: Le Chatelier's Principle and Acids and Bases |

Pre-class worksheet 5 due Friday Feb 17 at 8AM
Mastering Chemistry Hmwk. Set 5 due Tue Feb 21 at 11:59 PM
Online Quiz week 5 releases Friday, Feb 17 at 3PM and due Tues. Feb 21 at 11:59 PM

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| **6** | **Mon. Feb 21 NO CLASS PRESDIENT'S DAY….DAY OFF** | | | |
| | **Wednesday is a Monday class Schedule** | | | |
| | Wed., Feb 22 | 15 | 17 | 17.4 to 17.6 Weak Acids and Bases |
| | Fri., Feb. 24 | 16 | 17 | 17.7 to 17.8 Polyprotic Acids, Molecular Structure, Lewis Acids |

Pre-class worksheet 6 due Feb 24 at 8AM
Mastering Chemistry Hmwk. Set 6 due Tues. Feb 28 at 11:59 PM
Online Quiz week 6 releases Friday, Feb 24 at 3 PM due Tues. Feb 28 at 11:59 PM

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| **7** | Mon Feb 27 | | | ***Chapter 18 Aqueous Ionic Equilibrium*** |
| | | 17 | 18 | 18.1 to 18.3 Buffers |
| | Wed., Mar 1 | 18 | 18 | 18.3 to 18.4 Titrations and Indicators |
| | Fri., Mar. 3 | 19 | 17/18 | Group Worksheet Week 7: Buffers, Titrations and Indicators |

Pre-class worksheet 7 due Friday Mar. 3 at 8 AM
Mastering Chemistry Hmwk. Set 7 due Tues Mar. 7 at 11:59 PM
Online Quiz week 7 releases Fri. Mar. 3 at 3 PM due Tues. Mar. 7 at 11:59 PM although recommended to complete before the exam 2

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| **8** | Mon., Mar. 6 | 20 | 18 | Review Acids/Bases, Titrations and Indicators |
| | **Tues. Mar 7** | **Exam 2** | | **Chapter 16, 17 and 18.1 to 18.3 (Buffers) at 5:00 PM** |
| | Wed., Mar. 8 | 21 | 18 | 18.5 to 18.8 Solubility Equilibria |
| | Fri., Mar. 10 | 22 | 18 | Group Worksheet Week 8: Titrations and Solubility Equilibria |

Pre-class worksheet 8 due Friday Mar 10 at 8AM
Mastering Chemistry Hmwk. Set 8 due Tue Mar 21 at 11:59PM
Online Quiz week 8 releases Fri Mar 10 at 3PM and due Wed. March 22 at 11:59 PM

**SPRING BREAK SUNDAY March 12 2023 to Sunday March 19 2023 No Classes**

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| **9** | Mon., Mar. 20 | 23 | 19 | ***Chapter 19 Free Energy and Thermodynamics*** |
| | | | | 19.1 to 19.3 Chemical Thermodynamics |
| | Wed., Mar. 22 | 24 | 19 | 19.4 to 19.6 Free Energy |
| | Fri., Mar 24 | 25 | 19 | Group Worksheet Week 9 on Entropy/Free Energy |

Pre-class worksheet 9 due Friday Mar 24 at 8 AM
Mastering Chemistry Hmwk. Set 9 due Mon Mar 27 at 11:59 PM
Online Quiz week 9 releases Fri Mar. 24 at 3 PM and due Tues. Mar 28 at 11:59 PM

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| **10** | Mon., Mar 27 | 26 | 19 | 19.6 to 19.7 Free Energy |
| | Wed., Mar. 29 | 27 | 19 | 19.8 Free Energy/Equilibrium |
| | Fri., Mar 31 | 28 | 19 | Group worksheet week 10: Free Energy/Equilibrium |

Pre-class worksheet 10 due Fri. Mar. 31 at 8 AM
Mastering Chemistry Hmwk. Set 10 due Tue Apr. 4 at 11:59 PM
Online Quiz week 10 releases Fri. Mar 31 at 3 PM and due Tues. Apr 4 at 11:59 PM

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| **11** | Mon., Apr. 3 | 29 | ***Chapter 20 Electrochemistry*** | |
| | | | 20 | 20.2 Balancing Redox Reactions |
| | Wed., Apr. 5 | 30 | 20 | 20.2 to 20.3 Redox, Galvanic Cells, Electrode Potential |
| | **Fri., Apr. 7** | | **20** | **NO CLASS, STEVEN'S CLOSED** |

Pre-class worksheet 11 and 12 due Fri. Apr. 14 at 8AM
Mastering Chemistry Hmwk. Set 11 due Tue. Apr. 11 at 11:59 PM
Online Quiz week 11 releases Wed. Apr. 5 at 3 PM and due Tues. Apr. 11 at 11:59 PM

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| **12** | Mon., Apr 10 | 31 | 20 | 20.4 to 20.6 Cell Potential, Free Energy |

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| | Wed. Apr 12 | 32 | 20 | 20.6 to 20.9 Equilibrium Constant, Batteries and Electrolysis |
| | Fri., Apr 14 | | | Group Worksheet Week 12 on Electrochemisry |

Pre-class worksheet 11 and 12 due Fri. Apr. 14 at 8AM
Mastering Chemistry Hmwk. Set 12 due Tues Apr. 18 at 11:59 PM
Online Quiz week 12 releases Fri April 15 at 3 PM due Tues. Apr 18 at 11:59 PM

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| **13** | Mon. Apr 17 | 33 | | ***Chapter 26 Transition Metals and Coordination Compounds*** |
| | | | | 26.1 to 26. 3 Properties of Transition Metals/Coordination Compounds |
| | **Tues, Apr 18** | **Exam 3** | | **Chapter 18.4 to 18.8, 19 and 20 at 5:00PM** |
| | Wed. Apr 19 | 34 | 26 | 26.4 to 26.6 Coordination Compounds: Structure and Bonding and applications |
| | Fri., Apr 21 | 35 | 26 | Group Worksheet Week 13 Transition Metals and Coordination compounds |

Pre-class worksheet 12 and 13 due Fri. Apr. 21at 8AM
Mastering Chemistry Hmwk. Set 13 Tues. Apr 25 at 11:59 PM
Online Quiz week 13 releases Fri Apr. 21 at 3 PM due Tues. Apr 25 at 11:59 PM

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| **14** | Mon. Apr 24 | 36 | | Project Video and Paper Discussion |
| | Wed. Apr 26 | 37 | 21 | ***Chapter 21 Radioactivity and Nuclear Chemistry*** |
| | | | 21 | 21.1 to 21.6 Radioactivity |
| | **Last day to withdraw Thursday Apr 27** | | | |
| | Fri Apr 28 | 38 | 21 | 21.7 to 21.12 Nuclear Energetics |

Pre-class worksheet 14 due Fri. Apr 28 at 8 AM
Mastering Chemistry Hmwk. Set 14 due by Tues May 1 at 11:59 PM
Online Quiz week 14 releases Fri. Apr. 28 due Tues. May 1 at 11:59 PM
**Paper and Video due Sunday April 30**

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| **15** | Mon May 1 | 39 | 21 | Group Worksheet Week 14 on Radioactivity and Nuclear Chemistry |
| | Wed May 3 | 40 | | Discussion Real World Chemistry Examples/Review |
| | ***Thursday is a Friday Class Schedule*** | | | |
| | Thursday May 4 | 41 | | Review |

Online Quiz week 15 releases Thursday May 4 and due day before final at 11:59PM
Mastering Chemistry bonus homework due before final at 11:59 PM

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16 **FINAL EXAM** TBD May 5 to May 16
Final exam will be comprehensive and cover all the material covered during the semester