



**CHM 4070**  
**Historical Perspectives in Chemistry**  
**82879 001**  
**Fall 2026**

**Instructor Name**

---

Jeff Raker

**University Course Description**

---

An in-depth study of the historical and philosophical aspects of chemical discoveries and theories.

**Course Requisites**

---

**Prerequisite(s):**

(CHM 3610 Minimum Grade: C)

**Corequisite(s):**

**Course Format**

---

Online (asynchronous)

**Student Learning Outcomes**

---

By the end of this course, you will be able to:

- Analyze and explain the significance of key events in and figures to the development of chemistry, demonstrating how scientific discoveries evolved and influenced broader historical contexts.

- Critically evaluate key written works in the history of chemistry, assessing their scientific contributions, historical context, and impact on the evolution of chemical theory.
- Objectively analyze the limitations and complexities involved in reconstructing and communicating the history of chemistry, identifying challenges such as source reliability, historical biases, and evolving interpretations of scientific concepts.
- Interpret and assess primary chemistry documents (e.g., journal articles), situating them within historical and contemporary contexts, and demonstrate their influence on current chemical research.
- Examine the reciprocal relationship between human society and the development of chemistry, evaluating how social, economic, and cultural factors shaped chemical advancements and how these advancements influenced societal change.
- Effectively communicate by crafting well-organized, clear, and coherent written texts relating to historical themes in chemistry.

## Course Objectives

---

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

1. Analyze and explain the significance of major events and influential figures in the history of chemistry, evaluating how scientific discoveries developed over time and shaped broader historical and intellectual contexts.
2. Critically evaluate foundational written works in chemistry, assessing their scientific contributions, historical circumstances, and influence on the evolution of chemical theories and practices.
3. Examine the challenges of reconstructing and communicating the history of chemistry by identifying issues related to source reliability, historical bias, and changing interpretations of scientific knowledge.
4. Interpret and assess primary chemical literature and historical documents, situating them within their original contexts while evaluating their continuing relevance to contemporary chemical research.
5. Analyze the reciprocal relationship between chemistry and society by evaluating how social, economic, political, and cultural factors influenced chemical advancements and how these advancements, in turn, transformed human societies.
6. Communicate effectively in writing by producing clear, coherent, and well-organized analyses of historical themes, developments, and debates in the history of chemistry.

## Required Texts and/or Readings and Course Materials

---

- *Creations of Fire: Chemistry's Lively History from Alchemy to the Atomic Age.* (1995). By Cathy Cobb and Harold Goldwhite
  - *An electronic version is available for free.*  
*See Canvas for PDFs and links to the text.*
- See Canvas for other required readings, as assigned, accessible through USF libraries or available on the Internet.

## Grading Scale

---

| Grading Scale (%) |                 |
|-------------------|-----------------|
| A                 | 90.00% – 100.0% |
| B+                | 85.00% – 89.99% |
| B                 | 80.00% – 84.99% |
| C+                | 75.00% – 79.99% |
| C                 | 70.00% – 74.99% |
| D                 | 60.00% – 69.99% |
| F                 | 00.00% – 59.99% |

## Grade Categories and Weights

---

| Assessment                                                                                                                                                                                                                                                                                                              | Points Per Assignment | Total Points | Percent of Final Grade |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|--------------|------------------------|
| <b>Term Paper</b> <ul style="list-style-type: none"><li>• Topic Selection (5 pts.)</li><li>• Initial Meeting with Course Instructor (5 pts.)</li><li>• Draft Term Paper (10 pts.)</li><li>• Peer Review (5 pts.)</li><li>• Final Term Paper (70 pts.)</li><li>• Final Meeting with Course Instructor (5 pts.)</li></ul> | ---                   | 100 pts.     | 33.33%                 |
| <b>Quizzes</b> (twenty; one per Chapter)                                                                                                                                                                                                                                                                                | 5 pts. each           | 100 pts.     | 33.33%                 |

|                                                                                            |              |         |        |
|--------------------------------------------------------------------------------------------|--------------|---------|--------|
| <b>Timeline Portfolio</b> (ten; one per Module)                                            | 5 pts. each  | 50 pts. | 16.67% |
| <b>Reflection Writing Activities</b><br>(two; at the beginning and at the end of the term) | 25 pts. each | 50 pts. | 16.67% |

## **Instructor Feedback Policy & Grade Dissemination**

---

Grades are disseminated via Canvas. Most assignments are graded within 24 hours; longer assignments are typically graded within 7-10 days.

## **USF Core Syllabus Policies**

---

USF has a set of central policies related to student recording class sessions, academic integrity and grievances, student accessibility services, academic disruption, religious observances, academic continuity, food insecurity, pregnancy and related conditions, and sexual harassment that **apply to all courses at USF**. Be sure to review these online:

<https://www.usf.edu/provost/faculty-success/resources-policies-forms/core-syllabus-policy-statements.aspx>

## **Student Recordings**

---

### **Florida Statute 1004.097 Free Expression on Campus**

Students may, without prior notice, record video or audio of a class lecture for a class in which the student is enrolled for their own personal, educational use (USF Policy 10-048). A class lecture is defined as a formal or methodical oral presentation as part of a university course intended to present information or teach enrolled students about a particular subject. Recording class activities other than class lectures, including but not limited to lab sessions, student presentations (whether individually or part of a group), class discussion, clinical presentations such as patient history, academic exercises involving student participation, test or examination administrations, field trips, private conversations between students in the class or between a student and the faculty member is prohibited. Recordings may not be used as a substitute for class participation and class attendance and may not be published or shared without the written consent of

the faculty member. Failure to adhere to these requirements may constitute a violation of the USF Student Conduct Code.

## **Course Policies: Grades**

---

### **Late Policy:**

Late submissions will be accepted, however a deduction of 25% will be made for each day late. A late submission of the Term Paper Draft will result in both the deduction and an inability to participate, and thus receive points, for the Term Paper Peer Review assignment. For example, a writing assignment turned in two days late will be reduced by 50%; thus, the maximum score would be 50 out of 100 points.

### **Satisfactory/Unsatisfactory Grades:**

Students who meet the requirements described in the student catalog may elect to receive the grades of "S/U" (satisfactory/unsatisfactory). Appropriate documentation must be signed and agreed upon by the instructor and student by the end of the second week of the semester. At the end of the semester, letter grades of "A" through "C" will automatically be converted to an "S," and grades of "D" or "F" will become a "U." The "S/U" grades are not computed in the student's grade point average.

### **Incomplete Grades:**

An "I" grade may be awarded to a student only when a small portion of the student's work is incomplete and only when the student is otherwise earning a passing grade. The time limit for removing the "I" is to be set by the instructor of the course. For undergraduate students, this time limit may not exceed two academic semesters, whether or not the student is in residence, and/or graduation, whichever comes first. For graduate students, this time limit may not exceed one academic semester. "I" grades not removed by the end of the time limit will be changed to "IF" or "IU," whichever is appropriate.

### **Academic Grievance Procedures:**

The purpose of these procedures is to provide all undergraduate and graduate students taking courses at the University of South Florida with an opportunity for an objective review of facts and events pertinent to the cause of the

academic grievance. An “academic grievance” is a claim that a specific academic decision or action that affects the student’s academic record or status has violated published policies and procedures, or has been applied to the grievant in a manner different from that used for other students. See the [procedure for submitting an academic grievance](#).

**Academic Integrity:**

Cheating (including plagiarism and using websites such as Chegg, CourseHero) on any assignment will be punished as severely as allowed under university guidelines. The USF Policy on Academic Integrity specifies that students may not use websites that enable cheating, such as by uploading or downloading material for this purpose. Students receiving an “F” as a result of academic misconduct will receive an “FF” on their permanent record and will be brought to the attention of the Dean’s Office for further action. All students should review the Undergraduate Catalog regarding the University’s stance on what constitutes academic misconduct and suitable punishment (<http://regulationspolicies.usf.edu/regulations/pdfs/regulation-usf3.027.pdf>).

Academic integrity is the foundation of the University of South Florida System’s commitment to the academic honesty and personal integrity of its university community. Academic integrity is grounded in certain fundamental values, which include honesty, respect, and fairness. Broadly defined, academic honesty is the completion of all academic endeavors and claims of scholarly knowledge as representative of one’s own efforts. The process for faculty reporting of academic misconduct, as well as the student’s options for appeal, are outlined in detail in: <https://usf.app.box.com/v/usfregulation3027>.

**Grades of "Incomplete"**

---

The current university policy concerning incomplete grades will be followed in this course. For undergraduate courses: An “I” grade may be awarded to a student only when a small portion of the student’s work is incomplete and only when the student is otherwise earning a passing grade. The time limit for removing the “I” is to be set by the instructor of the course. For undergraduate students, this time limit may not exceed two academic semesters, whether or not the student is in residence, and/or graduation, whichever comes first. For graduate students, this time limit may not exceed one academic

semester. “I” grades not removed by the end of the time limit will be changed to “IF” or “IU,” whichever is appropriate.

## **Campus Free Expression**

---

It is fundamental to the University of South Florida’s mission to support an environment where divergent ideas, theories, and philosophies can be openly exchanged and critically evaluated. Consistent with these principles, this course may involve discussion of ideas that you find uncomfortable, disagreeable, or even offensive.

In the instructional setting, ideas are intended to be presented in an objective manner and not as an endorsement of what you should personally believe. “Objective” means that the idea(s) presented can be tested by critical peer review and rigorous debate, and that the idea(s) is supported by credible research.

In this course you may be asked to engage with complex ideas and to demonstrate an understanding of the ideas. Understanding and engaging with an idea does not require you to believe it or to agree with it.

## **Course Policies: Technology and Media**

---

### **Preferred Method of Communication – Email:**

While Canvas Inboxes will be periodically checked, students should email Dr. Raker (jraker@usf.edu) to receive the most prompt and complete response. Please address the course instructor professionally and with appropriate titles (e.g., Dr. Raker) in your email communication. Please put “CHM 4070” in the Subject line.

### **Online/Internet Access:**

This course is entirely online including distribution of course materials and submitting writing assignments. To complete this course, every student enrolled acknowledges their responsibility for ensuring reliable online/internet access. Failure to have reliable online/internet access is not an excuse for accessing course materials and submitting course assignments late. If you are using internet access that is used by multiple people or accessed by multiple computers/devices, ensure that others are not simultaneously using up bandwidth during key assignment submission times. It may be necessary to utilize a cell phone hot spot as back-up internet access.

**Netiquette Guidelines:**

1. Act professionally in the way you communicate. Treat your instructors and peers with respect, the same way you would do in a face-to-face environment. Respect other people's ideas and be constructive when explaining your views about points you may not agree with.
2. Be sensitive. Be respectful and sensitive when sharing your ideas and opinions. There will be people in your class with different linguistic backgrounds, political and religious beliefs or other general differences.
3. Proofread and check spelling. Doing this before sending an email or posting a thread on a discussion board will allow you to make sure your message is clear and thoughtful. Avoid the use of all capital letters, it can be perceived as if you are shouting, and it is more difficult to read.
4. Keep your communications focused and stay on topic. Complete your ideas before changing the subject. By keeping the message on focus you allow the readers to easily get your idea or answers they are looking for.
5. Be clear with your message. Avoid using humor or sarcasm. Since people can't see your expressions or hear your tone of voice, meaning can be misinterpreted.

**Course Policies: Student Expectations**

---

**Health and Wellness**

Your health is a priority at the University of South Florida. We encourage members of our community to look out for each other and to reach out for help if someone is in need. If you or someone you know is in distress, please make a referral at [www.usf.edu/sos](http://www.usf.edu/sos) so that the Student Outreach & Support can contact and provide helpful resources to the student in distress. A 24-hour licensed mental healthcare professional, offered through the counseling center, is available by phone at 813-974-2831, option 3. Please remember that asking for help is a sign of strength. In case of emergency, please dial 9-1-1.

**Title IX Policy**

USF is committed to fostering a safe and respectful learning environment, free from sex discrimination and sexual harassment, in accordance with Title IX and USF Policy 0-004. If a student shares an experience of sexual harassment, sexual assault, stalking, or relationship violence with a USF employee (including faculty), that employee will notify the Title IX Office. This allows the Title IX Office

to send the student an email with information about support resources and options—if it is safe to do so. Students are not required to respond to this email. The Title IX Office is a private resource. Information is shared only on a need-to-know basis to provide students with support measures. To speak to a confidential resource, students may contact USF Center for Victim Advocacy at 813-974-5757. Confidential resources do not notify the Title IX Office unless the student requests it. For more information about Title IX, available resources, or to make a report, please visit [www.usf.edu/title-ix](http://www.usf.edu/title-ix).

### **Course Hero / Chegg Policy**

The USF Policy on Academic Integrity specifies that students may not use websites that enable cheating, such as by uploading or downloading material for this purpose. This does apply specifically to Chegg.com and CourseHero.com – almost any use of these websites (including uploading proprietary materials) constitutes a violation of the academic integrity policy.

### **Professionalism Policy**

Per university policy and classroom etiquette; mobile phones, iPods, etc. must be silenced during all classroom and lab lectures. Those not heeding this rule will be asked to leave the classroom/lab immediately so as to not disrupt the learning environment. Please arrive on time for all class meetings. Students who habitually disturb the class by talking, arriving late, etc., and have been warned may suffer a reduction in their final class grade.

### **Turnitin.com**

In this course, turnitin.com may be utilized. Turnitin is an automated system which instructors may use to quickly and easily compare each student's assignment with billions of web sites, as well as an enormous database of student papers that grows with each submission. Accordingly, you may be expected to submit all assignments in both hard copy and electronic format. After the assignment is processed, as instructor I receive a report from turnitin.com that states if and how another author's work was used in the assignment. For a more detailed look at this process visit <http://www.turnitin.com>.

## **Netiquette Guidelines**

- Act professionally in the way you communicate. Treat your instructors and peers with respect, the same way you would do in a face-to-face environment. Respect other people's ideas and be constructive when explaining your views about points you may not agree with.
- Be sensitive. Be respectful and sensitive when sharing your ideas and opinions. There will be people in your class with different linguistic backgrounds, political and religious beliefs or other general differences.
- Proofread and check spelling. Doing this before sending an email or posting a thread on a discussion board will allow you to make sure your message is clear and thoughtful. Avoid the use of all capital letters, it can be perceived as if you are shouting, and it is more difficult to read.
- Keep your communications focused and stay on topic. Complete your ideas before changing the subject. By keeping the message on focus you allow the readers to easily get your idea or answers they are looking for.
- Be clear with your message. Avoid using humor or sarcasm. Since people can't see your expressions or hear your tone of voice, meaning can be misinterpreted.

## **Email and Discussion Board Guidelines**

- Use the subject line effectively by using a meaningful line of what your email or discussion is about.
- Keep your emails and postings related to the course content. You should not post anything personal on a discussion board unless it is requested by the instructor.
- Any personal, course or confidential issues should be directly communicated to the instructor via email. The discussion boards are public spaces; therefore, any issues should not be posted there.

## **End of Semester Student Evaluations**

All classes at USF make use of an online system for students to provide feedback to the University regarding the course. These surveys will be made available at the end of the semester, and the University will notify you by email when the response window opens. Your participation is highly encouraged and valued.

## **Food and Drink Policy (for in-campus sessions only).**

Please adhere to the firm policy of no beverages (other than bottled/capped water), food, tobacco products, or like items in the classroom. Your

understanding of the necessity for this policy and cooperation will be greatly appreciated. This policy will be strictly enforced.

## **Learning Support and Campus Offices**

---

### **Academic Accommodations**

Students with disabilities are responsible for registering with Student Accessibility Services (SAS) in order to receive academic accommodations. For additional information about academic accommodations and resources, you can visit the SAS website.

[SAS website for the Tampa campus and Sarasota-Manatee Teachout site.](#)

[SAS website for the St. Pete campus.](#)

### **Academic Support Services**

The USF Office of Student Success coordinates and promotes university-wide efforts to enhance undergraduate and graduate student success. For a comprehensive list of academic support services available to all USF students, please visit the [Office of Student Success website.](#)

### **Canvas Technical Support**

If you have technical difficulties in Canvas, you can find access to the Canvas guides and video resources in the “Canvas Help” page on the homepage of your Canvas course. You can also contact the help desk by calling 813-974-1222 in Tampa or emailing [help@usf.edu](mailto:help@usf.edu).

[USF IT Services](#)

### **Center for Victim Advocacy**

The [Center for Victim Advocacy](#) empowers survivors of crime, violence, or abuse by promoting the restoration of decision making, by advocating for their rights, and by offering support and resources. Contact information is available online.

## **Counseling Center**

The Counseling Center promotes the wellbeing of the campus community by providing culturally sensitive counseling, consultation, prevention, and training that enhances student academic and personal success. Contact information is available online.

[Counseling Center website for the Tampa campus and Sarasota-Manatee Teachout site.](#)

[Counseling Center website for the St. Pete campus.](#)

## **Tutoring**

The Tutoring Hub offers free tutoring in several subjects to USF undergraduates. Appointments are recommended, but not required. For more information, email [asctampa@usf.edu](mailto:asctampa@usf.edu).

[Tutoring website for the Tampa campus and Sarasota-Manatee Teachout site.](#)

[Tutoring website for the St. Pete campus.](#)

## **Writing Studio**

The Writing Studio is a free resource for USF undergraduate and graduate students. At the Writing Studio, a trained writing consultant will work individually with you, at any point in the writing process from brainstorming to editing. Appointments are recommended, but not required. For more information or to make an appointment, email: [writingstudio@usf.edu](mailto:writingstudio@usf.edu).

[Writing studio website for the Tampa campus and Sarasota-Manatee Teachout Site.](#)

[Writing studio website for the St. Pete campus.](#)

## **Student Ombuds Office**

Florida Statute 1006.51 and Florida Board of Governors Regulation 6.011 require that all public institutions provide ombuds services to students. The Student Ombuds Office at USF is a confidential, impartial, informal, and independent

resource for students experiencing challenges related to the university. Ombuds can help students safely explore options, clarify processes, and consider next steps. [Learn more or make an appointment at usf.edu/student-ombuds.](https://usf.edu/student-ombuds)