

## CHEMISTRY 301-Preparation of Scientific Documents for Chemistry

### Southern Connecticut State University

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#### Fall Semester 2020

**Lectures:** Online asynchronous

**Online Office Hours:**  
M: 11:00 am– 1:00 pm  
W: 11:00 am– 1:00 pm  
F: 11:00 am – 12:00 pm

All students will be given access to online office hours via the Teams app. Please make sure you are comfortable with the use of Teams software and aspects such as sharing your screen to better facilitate the tutorial process. Students should be prepared to ask questions and participate during office hours. It is not acceptable to just logon and attempt to get answers to assignments without attempting the work. Note that office hours are available to students in all of my courses on a first come, first served basis. I do not schedule individual office hours unless there is an extraordinary set of circumstances. I do not accommodate individual student work schedules, it is your responsibility to organize your time and obtain help as needed according to my schedule.

#### COURSE REQUIRED MATERIALS

##### **Textbook:**

*The ACS Style Guide: Effective Communication of Scientific Information; 3<sup>rd</sup> Edition*; Coghill, A. M., Garson, L. R., Eds.; Oxford University Press: New York, 2006. (ISBN: 0841239991). For a free online link to the text see: <https://libguides.southernct.edu/chemistry/citingsources> There is also an updated version available at: <https://scsu.idm.oclc.org/login?url=https://pubs.acs.org/doi/book/10.1021/acsguide>

##### **Online Resources:**

Students will be required to download ChemDraw® software using the site license (instructions document available on Blackboard) and to setup an account on SciFinder® via the Buley library databases. First time users of SciFinder® must be on campus to set up an account.

##### **Internet Access:**

This course will be conducted in an online, asynchronous manner. The asynchronous delivery means that students will be required to pace themselves accordingly in order to view the curricular materials and complete the assignments by the due dates indicated. This requires a reliable source of access to the internet. Students should also frequently check email and Blackboard for course announcements and updates.

#### COURSE DESCRIPTION:

Expected Student Learning Activity	Weekly Hours for Course*	Total Hours for Course (14 week semester)	Term Credits Earned
Lecture time (Contact Hours)	1	14	
Reading and Study Time	2	14	
Assignments	2	14	
<b>Total Hours</b>	<b>6</b>	<b>47</b>	<b>1</b>

\* Please note that these times are only estimates based on the Department of Education's definition of a credit hour and do not guarantee a specific grade in the course. Students may find that they require more or less time to succeed in the course.

The course will focus on the organization of scientific reports including styles commensurate with the American Chemical Society, Royal Society of Chemistry and additional journal publications, as well as the use of software

programs designed specifically for the field of chemistry in the preparation of scientific documents. This includes an introduction to online searching tools such as SciFinder and Reaxys and software programs ChemDraw and Microsoft Word (formatting of documents) primarily, and the manipulation of materials between these software programs. This is part of a curricular revision in the Chemistry department that began with the revised outline for the preparation of scientific documents in the General Chemistry sequence. The content of CHE 301 will expand on this knowledge by incorporating an advanced level of teaching commensurate with training for majors as opposed to the general science based student body for which field specific styles may vary. The course content will address advanced communication skills and application of these skills to actual writing styles of scientific journal articles through a variety of assignments aimed at progressively enhancing skills. An emphasis will also be placed on the generation of appropriate documents utilizing many of the special features of the software described above.

### **TIER III STATEMENT**

This course is one of three one-credit courses providing advanced training in areas related to Tier 1 and Tier 2 competencies as well as addressing techniques to utilize ethical behavior in the preparation of scientific documentation.

In this course we:

1. draw on the following Tier 2 Areas of Knowledge and Experience: *Natural World 1*
2. utilize the following Tier 1 *Competencies* at an advanced level: *Written Communication; Technological Fluency; Critical Thinking*
3. engage in the following Discussions of Values and any interrelationships: *Why it is important to be able to communicate scientific information in an appropriate fashion while adhering to ethical requirements of journal publishers.*
4. require the following *Culminating Project* that encourages students to integrate their Liberal Education Program experience: *Sets the groundwork for senior theses including appropriate chemistry writing styles, the use of discipline specific software for online searching, for the preparation of figures, schemes, mechanistic descriptions of chemical reactions, and critical thinking used to assess the results of scientific experimentation at an advanced level.*
5. address the following Capacious Contemporary Issue(s): *Avoiding plagiarism – ethical behavior in science.*

### **LEARNER OUTCOMES & ASSESSMENT**

Students enrolled in this course are expected to learn how to utilize the software programs necessary to prepare scientific reports for courses, publication, etc. in a professional manner. This includes training with the various software programs and demonstrating their proficiency on assignments. Special attention will be given to the departmental requirements for thesis preparation according to American Chemical Society style guidelines. Specific objectives are listed below:

- Learn what it means to plagiarize work and how to avoid this. Students will read the policy on plagiarism and follow guidelines related to the preparation of assignments. Students will learn the proper manner to cite literature sources and paraphrase in an accepted fashion.
- Learn proper referencing styles commensurate with the American Chemical Society (ACS) guidelines and additional journal guidelines associated with the Royal Society of Chemistry (RSC) and the Chemical Institute of Chemistry (CIC). Students will be expected to write and/or correct citations for the specific style formats required by each of the publishing bodies.
- Learn how to use the library resources available for searching the chemical literature with a focus on the use of discipline specific search engines (SciFinder, Reaxys). Students will demonstrate the knowledge by using the online resources to find the requested information related to availability of journals, books, and reference materials. Students will also use the resources to find examples of journal articles and notice to authors for selected journals in the field of study.
- Learn how to report scientific data by accepted professional standards for spectroscopic interpretation of data including GCMS (gas chromatography/mass spectroscopy detector), NMR (Nuclear Magnetic Resonance) and IR (Infrared) spectroscopy. Students will apply critical thinking and the knowledge learned by summarizing assigned spectral data according to the specific style guidelines for the American Chemical Society.
- Learn how to use style sheets, set up toolbars, and other formatting techniques (Track Changes) using MS Word. This includes but is not limited to writing proper chemical formulas in reports, formatting and importing tables of data, spell checking, grammar checking, and utilizing special characters pertinent to the study of chemistry. Students will demonstrate the knowledge on assignments by writing or correcting various examples of

formatting using the parameters of the Word program. Demonstration of the ability to use formatting preferences, document styles, and programs such as equation editor and track changes will be required on assignments.

- Learn how to use drawing software specific to the discipline (ChemDraw) in the preparation of professional reports. This includes but is not limited to setting drawing and caption preferences, utilizing toolbars and rulers to prepare drawings suitable for importing into other programs such as MS Word, utilizing templates, formatting drawings for consistency and appearance. Students will be asked to reproduce a variety of figures, mechanisms, and catalytic cycles in a clean, well-aligned professional quality presentation using specific style preferences.

- Learn how to write scientific documents in a professional fashion in terms of content and overall presentation quality. The overall goal is to have students demonstrate the ability to draw on experiences in the course to prepare reports that are written using all aspects of style and preparation of figures to develop superior report writing skills. Students are expected to transfer these skills to all report writing throughout the remainder of their undergraduate degree program. The majority of the curricular material is designed to aid students in the preparation of a capstone thesis project for those students selecting this option.

## **MODES OF LEARNING**

Video lectures/demonstrations and hands-on work utilizing discipline specific software applications.

## **COURSE CONTENT OUTLINE**

Weeks 1-3: (assignment 1 content) Discussion on plagiarism. Review of basic report writing formats. Discussion of different journal styles including accepted citation styles for journals, books, and proceedings of conferences using the ACS style guide. Comparison between journal and laboratory report styles.

Weeks 4: (assignment 2 content) Demonstration of the online resources and discussion of bound resources at Buley Library including SciFinder and Reaxys.

Weeks 5,6: (assignment 3 content) Selected aspects of the ACS style guide including but not limited to the use of abbreviations, Latin terminology, capitals, tricky plurals, use of tables, schemes, and figures.

Weeks 7-9: (assignment 4 content) Using Microsoft Word software. Demonstrations of the various tools in the program including defining style sheets, formatting documents, formatting characters. Demonstrations including the use of special characters, using the equation editor program.

Weeks 10-12: (assignment 5 content) Introduction to ChemDraw software programming. Demonstrations of how to set drawing and text preferences, drawing chemical structures using the various tools and templates, formatting files, drawing advanced chemical structures. Practice using ChemDraw software replicating worksheet materials. Preparation of reaction schemes such as organic reaction mechanisms and catalytic cycles.

Weeks 13, 14: (assignment 6 content) ACS styles for reporting analytical data. Drawing NMR legends for assignments, evaluating spectral data and extracting/reporting GCMS data, FTIR data summaries, multi-nuclear NMR data (chemical shift data, calculating coupling constants).

## **EVALUATION CRITERIA**

Student evaluations will be determined on the basis of assignments that demonstrate proficiency for the curricular content including the use of specific software. The assignments will involve a series of exercises using the ACS Style Guide, and computer programs discussed in class in conjunction with curricular material related to chemistry writing styles, formatting of documents, using discipline specific online search tools, preparation of drawings according to ACS styles, and critical thinking in the interpretation and summary of spectral data. The assigned work involves transferrable skills for chemistry majors that are designed to enhance communications skills for upper level lab reports and theses.

### ***Final Course Evaluation:***

The final course grade will be based on the grades obtained for 6 assignments to account for the total grade of 100 pt.

Assignments **must** be submitted as separate attachments/files to email files so that they can be downloaded and edited by the instructor. Files must be attached as Word files or ChemDraw files only. Work in “pages” or other programs will not be accepted since these formats cannot be downloaded and edited properly by the instructor. Attached files must contain the surname first and contain the section number. (e.g., Lesley sec 70 assign 1.docx)

The actual letter grade will be based on the grading scale given below.

The following final grade scale will be used:

A+ = 96 - 100%	B+ = 82 - 85%	C+ = 70 - 73%	D+ = 58 - 61%	F = ≤ 49
A = 91 - 95%	B = 78 - 81%	C = 66 - 69%	D = 54 - 57%	
A- = 86 - 90%	B- = 74 - 77%	C- = 62 - 65%	D- = 50 - 53%	

The instructor reserves the right to adjust the grading scales for class average at the end of the semester.

### ***Late/Missed Work:***

Late assignments will not be accepted for grading unless accompanied by a doctor's note and notification prior to the due date. It is your responsibility to allocate sufficient time ahead of due dates to complete the assigned work in order to submit the work by the due date indicated for each assignment. It is also your responsibility to remember the due dates! (“I forgot” is not an acceptable excuse)

### **ACCOMMODATING STUDENTS WITH DISABILITIES**

Southern Connecticut State University provides reasonable accommodations in accordance with the Americans with Disabilities Act and Section 504 of the Rehabilitation Act, for students with documented disabilities on an individualized basis. If you are a student with a documented disability, the University’s Disability Resource Center (DRC) can work with you to determine appropriate accommodations. Before you receive accommodations in this class, you will need to make an appointment with the Disability Resource Center located at EN C-105A. To discuss your approved accommodations with me or other concerns, such as medical emergencies or arrangements in case the building must be evacuated, please make an appointment to meet as soon as possible.

### **ACADEMIC DISHONESTY**

Unfortunately, the question of academic dishonesty occasionally becomes an issue between an instructor and a student. The best way to avoid this is to be sure that no suspicion arises. Copying assignments or any portion of an assignment will not be tolerated. Claims of working together are not acceptable since it is required that students complete all work in an independent fashion. The student handbook outlines the various prerogatives of the instructor in cases of academic dishonesty. In this course, all submissions are made online via email. Unfortunately, in the past students have tried to submit the same files for assignments and everyone must now pay the price. **If I catch any student copying any part of an assignment, both (or all) students involved will receive an immediate grade of F for this course. There are no exceptions.**

***Statement on Online Resources:*** Due to the recent inappropriate use of online materials and issues pertaining to plagiarism a policy statement regarding the requirements for using materials I have developed for this course, has been prepared. Please read this carefully and be sure you understand the implications of academic misconduct in my courses.

All of the materials I prepare for use in this course (PowerPoint presentations, lecture notes, assignments, narrated versions of the aforementioned work, etc.) are protected by U. S. copyright law. I am the exclusive owner of the copyright for the materials I create and you may NOT reproduce, distribute or display (post/upload) lecture notes, recordings or any other course materials without my express written consent. (You may share the materials with another student who is registered and enrolled in the course.) Any student caught violating the rules pertaining to my copyrighted work or submitting work plagiarized from online resources or another student, will be given a grade of F for the course and an academic misconduct form will be filed with the Office of the Dean of the College of Arts and Sciences. There will be no additional warnings, negotiations, etc. if you are caught. I have a zero tolerance policy for this behavior since it is in the best interest of the student to work individually (as is required) to obtain the intended knowledge provided by the curriculum that has been designed.

## **SEXUAL MISCONDUCT STATEMENT**

Southern Connecticut State University is highly committed to providing you with an educational experience that is academically and socially enriching. In line with this mission, we enforce Title IX of the Education Amendment of 1972, which prohibits acts of sexual misconduct (sexual harassment, sexual assault, dating violence, domestic violence and stalking) at educational institutions. To report sexual misconduct students should contact University Police at (203) 392-5375 or 911, and/or Paula Rice, Director, Office of Diversity and Equity, at (203) 392-5568 and/or Christopher Piscitelli, Office of Judicial Affairs, at (203) 392-6188. Paula Rice is our SCSU Title IX coordinator. For advocacy and further information including your Title IX rights and reporting procedures visit the Sexual Assault Resource Team (S.A.R.T.) website at [www.southernct.edu/SART/](http://www.southernct.edu/SART/). As an employee of SCSU I am required to report all instances of violations to the Title IX coordinator in a confidential manner.

## **INCLEMENT WEATHER**

When inclement weather threatens, call the university's WeatherChek voice mail message line (203-392-SNOW) to hear the latest official information on possible delayed openings, class cancellations, or the closing of the university.

## **ADDITIONAL THOUGHTS**

Your grade will not be based upon any claimed "need" which you may have. If you "need" a B in this course in order to gain admission into some program or transfer the course credit, then it is incumbent upon you, the student, to perform at the level that will fulfill the specific "need." It is not the professor's role to alter his or her evaluations of your work so as to take your "needs" into account.

There is no provision in this course to do work for "extra credit." It stands to reason that if a person is not performing adequately in the assigned tasks of a course, there is no point in giving that person "extra" work. Requests to do work for "extra credit" will not be honored.

## **ADDITIONAL RESOURCES**

1. Selected journal articles from within the discipline including:
  - (i) Journal of the American Chemical Society (ACS)
  - (ii) Inorganic Chemistry (ACS)
  - (iii) Chemical Reviews (ACS)
  - (iv) Chemical Communications (RSC)
  - (v) Journal of the Chemical Society, Dalton Transactions (RSC)
  - (vi) Canadian Journal of Chemistry (CIC)
2. This course will involve the use of a variety of documents, recorded lectures, handouts, and assignments that are available for students on the university Blackboard site.