



CHEM 2171

Water and Wastewater Chemistry Laboratory

Tuesday, 5-7:30 pm

Instructor: Dr. Walter Den

Email: walter.den@tamusa.edu

Office: STEM 349D

Office hours: After lab and by appointment

Course Description

This lab has been designated as an one-SCH course, CHEM 2171, which is a companion course with CHEM 2371 Water and Wastewater Chemistry (3 SCH). The objective is to familiarize students with essential analytical skills for key water quality parameters, such as biological oxygen demand (BOD), chemical oxygen demand (COD), suspended solids (SS), alkalinity, NO₃-N and NH₃-N, among others. **Corequisite:** CHEM 2371.

Course Materials

Laboratory handouts: You must print off a copy of all handouts from Blackboard before each lab session. All data should be collected with BLUE or BLACK NON-ERASABLE PEN. Refer to attached schedule for the sequential list of labs.

Calculator: scientific/engineering calculator. Examples of acceptable calculators include TI – 30Xa and TI36X for calculations on reports/worksheets.

Student responsibilities

University Email Policy and Course Communications: All correspondence between professors and students must occur via University email accounts. You must have your Jaguar email account ready and working. If it is not working, contact the help desk at sahelp@tamus.edu or at 210-784-HELP (4357). If you don't hear back within 48 hours, contact them again. They have a lot of requests during the first part of the semester, so you may need to follow up with them.

Students are expected to access Blackboard for updates on the course, announcements and other course materials. Discussions concerning grading/grades will not be addressed through email and will only be discussed during office hours or scheduled appointments.

Attendance Policy: Laboratory courses are unique to your education in that they will provide you with hands-on opportunities to gain the skills and critical thinking processes inherent to the study of chemistry. For these reasons, we have a strict attendance policy. Attendance is mandatory.



Absences will be excused if due to illness (medical excuse), death of a close family member, religious holiday (please inform instructor), official university activity, cancellation of classes/closure of the University, military duties, pregnancy & related conditions, or participation in legal proceedings. Only **one** laboratory will be excused for the above reasons.

Late Work Policy. Work is required to be turned in on time. Late work will be subjected to an additional 25% penalty per day. For example, if a report is due Friday at 11:59pm and the student submits the report on Saturday at 8am, 25% will be deducted (-12.5 points). If the report is submitted on Sunday, 50% will be deducted (-25 points). **Late lab work that is more than three days late will not be accepted.**

Conduct and Behavior. As an instructor, my goal is to create a safe and engaging learning environment. Class disruptions are unacceptable, asking questions to clarify material during class does not qualify as a disruption and is encouraged. If you are disrupting the lab, you will be asked to leave for the day. Technology in the classroom may be a great a resource but it can also hinder the learning process. Therefore, students are not allowed to wear ear buds and headphones and/or use cellphones during the lab. All cellphones must be on vibrate or turned off for the entirety of the class/lab period. In case of an emergency call, leave the room before answering the call. Texting during class is absolutely prohibited. The use of laptops, tablets or other devices for non-class related activities is not allowed.

Aggressive Behavior. The academic environment is meant for discussing ideas in a respectful manner. Tolerance, empathy, respect and courtesy help us create a safe environment. Abusive and aggressive behavior will result in contacting the University Police Department and immediate removal of the student from the classroom/lab.

Visitors. Only students enrolled in the course are allowed in the classroom. No visitors are allowed.

Academic Dishonesty is any act, or attempt, which gives an unfair advantage to the student. Academic dishonesty includes, but is not limited to –Plagiarism-Cheating-Lying-Bribery

As a member in an academic community, students at Texas A&M University - San Antonio are expected to exhibit a high level of honesty and integrity in their pursuit of higher education, be mature, be self-directed and be able to manage their own affairs. Students who are unwilling to abide by these basic expectations will find themselves facing academic and/or disciplinary sanctions. Students are expected to share in the responsibility and authority with faculty and staff to challenge and make known acts that violate the Texas A&M University - San Antonio Code of Conduct. Texas A&M University - San Antonio faculty have the discretion to impose grade penalties as deemed necessary and are **obliged to and will report** any form of academic dishonesty. For more information on the process of reported academic misconduct, please refer to

<http://www.tamusa.edu/studentengagementsuccess/StudentRightsAndResponsibilities/Academic-Misconduct/index.html>

Academic Dishonesty falls under Acts of Dishonesty in the Student Handbook's Code of Conduct. University policy prescribes serious consequences for acts of academic misconduct including, but not limited to, a grade of 'F' on the particular paper or assignment or a failing grade in the course. Also, a referral may be issued to the Office of Student Rights and Responsibilities where the sanctions can vary up to possible expulsion from the University. Considering the potential consequences of academic misconduct, it is obviously in students' best interests to avoid even the appearance of such behavior. If you are ever unclear whether a specific act might



constitute academic misconduct, please contact your instructor for an assessment of the situation. All student term papers and other written assignments are subject to analysis by anti-plagiarism software.

Academic Accommodations for Persons with Disabilities: The Americans with Disabilities Act Amendments Act (ADAAA) of 2008 and the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights protection for persons with disabilities. Title II of the ADAAA and Section 504 of the Rehabilitation Act require that students with disabilities be guaranteed equal access to the learning environment through the provision of reasonable and appropriate accommodation of their disability. If you have a diagnosed disability that may require an accommodation, please contact Disability Support Services (DSS) for the coordination of services. The phone number for DSS is (210) 784-1335 and email is dss@tamusa.edu.

Academic Learning Center: All currently enrolled students at Texas A&M University-San Antonio can utilize the Academic Learning Center for subject-area tutoring. The Academic Learning Center is an appointment based center where appointments are made through the Navigate platform. Students access Navigate through Jagwire in the Student Services tab. The Center is active on campus outreaching to students to highlight services offered. You can contact the Academic Learning Center by emailing tutoring@tamusa.edu or calling (210)-784-1332. Appointments can also be made through JagWire under the services tab.

Counseling Resources: As a college student, there may be times when personal stressors interfere with your academic performance and/or negatively impact your daily functioning. If you or someone you know is experiencing life stressors, emotional difficulties, or mental health concerns at Texas A&M University – San Antonio, please contact the Student Counseling Center (SCC) located in Modular C, Room 166 (Rear entrance) or call 210-784-1331 between the hours of 8:00AM and 5:00PM. All mental health services provided by the SCC are free, confidential (as the law allows), and are not part of a student's academic or university record. SCC provides brief individual, couples, and group therapy, crisis intervention, consultation, case management, and prevention services. For more information, please visit www.tamusa.edu/studentcounseling

In a crisis situation, please walk-in to the Student Counseling Center (SCC) any time between the hours of 8:00AM and 5:00PM to be seen by a licensed clinician. After hours, please contact UPD at 911 or text "HOME" to 741-741 24/7/365 to connect with a trained crisis counselor. The National Suicide Prevention hotline also offers a 24/7/365 hotline at 1-800-273-8255.

Emergency Preparedness: JagE Alert is Texas A&M University-San Antonio's mass notification. In the event of an emergency, such as inclement weather, students, staff and faculty, who are registered, will have the option to receive a text message, email and/or phone call with instructions and updates. To register or update your information visit: <https://tamusa.bbcportal.com/>.

More information about Emergency Preparedness and the Emergency Response Guide can be found here: <https://www.tamusa.edu/upd/index.html>.

Financial Aid and Verification of Attendance: According to the following federal regulation, 34 CFR 668.21: U.S. Department of Education (DoE) Title IV regulation, a student can only receive Title IV funds based on Title IV eligibility criteria which include class attendance. If Title IV funds are disbursed to ineligible students (including students who fail to begin attendance), the institution must return these funds to the U.S. DoE within 30 days of becoming aware that the student will not or has not begun attendance. Faculty will provide the



Office of Financial Aid with an electronic notification if a student has not attended the first week of class. Any student receiving federal financial aid who does not attend the first week of class will have their aid terminated and returned to the DoE. Please note that any student who stops attending at any time during the semester may also need to return a portion of their federal aid.

Jaguar Writing Center: The Jaguar Writing Center provides writing support to graduate and undergraduate students in all three colleges. Writing tutors work with students to develop reading skills, prepare oral presentations, and plan, draft, and revise their written assignments. The Writing Center is currently holding all appointments digitally. Students can schedule appointments with the Writing Center in JagWire under the student services tab. Students wanting to work in realtime with a tutor can schedule an “Online Appointment.” Students wishing to receive asynchronous, written feedback from a tutor can schedule an “eTutoring” appointment. More information about what services we offer, how to make an appointment, and how to access your appointment can be found on our website at www.tamusa.edu/Writing-Center. The Writing Center can also be reached by emailing writingcenter@tamusa.edu.

Meeting Basic Needs: Any student who has difficulty affording groceries or accessing sufficient food to eat every day, or who lacks a safe and stable place to live, and believes this may affect their performance in the course, is urged to contact the Dean of Students (DOS@tamusa.edu) for support. Furthermore, please notify the professor if you are comfortable in doing so. This will enable them to provide any resources they may possess.

Military Affairs: Veterans and active-duty military personnel are welcomed and encouraged to communicate, in advance if possible, and special circumstances (e.g., upcoming deployment, drill requirements, disability accommodations). You are also encouraged to visit the Patriots’ Casa in-person room 202, or to contact the Office of Military Affairs with any questions at military@tamusa.edu or (210)784-1397.

Religious Observances: Texas A&M University-San Antonio recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holidays according to their tradition. Under the policy, students are provided an opportunity to make up any examination, study, or work requirements that may be missed due to a religious observance provided they notify their instructors before the end of the second week of classes for regular session classes.

Respect for Diversity: We understand that our students represent diverse backgrounds and perspectives. When we are equity-minded, we are aware of differences and inequalities and are willing to discuss them so we can act to resolve them. The University is committed to building cultural competencies, or the attitudes, skills, and knowledge that enable individuals and organizations to acknowledge cultural differences and incorporate these differences in working with people from diverse cultures. Respecting and accepting people different than you is vital to your success in the class, on campus, and as a future professional in the global community. While working together to build this community we ask all members to:

- Share their unique experiences, values, and beliefs.
- Be open to the views of others.
- Honor the uniqueness of their colleagues.
- Value each other’s opinions and communicate respectfully.
- Keep confidential discussions that the community has of a personal (or professional) nature.
- Use this opportunity together to discuss ways in which we can create an inclusive environment in this course and across the A&M-San Antonio community.



The Six-Drop Rule: Students are subject to the requirements of Senate Bill (SB) 1231 passed by the Texas Legislature in 2007. SB 1231 limits students to a maximum of six (6) non-punitive course drops (i.e., courses a student chooses to drop) during their undergraduate careers. A non-punitive drop does not affect the student's GPA. However, course drops that exceed the maximum allowed by SB 1231 will be treated as "F" grades and will impact the student's GPA.

Statement of Harassment and Discrimination: Texas A&M University-San Antonio is committed to the fundamental principles of academic freedom, equality of opportunity and human dignity. To fulfill its multiple missions as an institution of higher learning, A&M-San Antonio encourages a climate that values and nurtures collegiality, diversity, pluralism and the uniqueness of the individual within our state, nation, and world. All decisions and actions involving students and employees should be based on applicable law and individual merit. Texas A&M University-San Antonio, in accordance with applicable federal and state law, prohibits discrimination, including harassment, on the basis of race, color, sex, religion, national origin, age, disability, genetic information, veteran status, sexual orientation, gender identity, or gender expression. Individuals who believe they have experienced harassment or discrimination prohibited by this statement are encouraged to contact the appropriate offices within their respective units.

Texas A&M University-San Antonio faculty are committed to helping create a safe learning environment for all students and for the university as a whole. If you have experienced any form of sex- or gender-based discrimination or harassment, including sexual assault, sexual harassment, domestic or dating violence, or stalking, know that help and support are available. A&M-San Antonio has staff members trained to support survivors in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, and more. The university strongly encourages all students to report any such incidents to the university. Please be aware that all A&M-San Antonio employees (other than those designated as confidential resources such as counselors and other healthcare providers are required to report information about such discrimination and harassment to the university. This means that if you tell a faculty member about a situation of sexual harassment or sexual violence, or other related misconduct, the faculty member must share that information with the university's Title IX Coordinator. If you wish to speak to a confidential employee who does not have this reporting responsibility, you can contact the Student Counseling Center at (210) 784-1331, Modular C.

Students' Rights and Responsibilities:

The purpose of the following statement is to enumerate the essential provisions for the student freedom and responsibility to learn at Texas A&M University-San Antonio. All students are required to follow all policies and regulations as set forth by The Texas A&M University System. This includes the [A&M-San Antonio Student Code of Conduct](#).

Students' Rights

1. A student shall have the right to participate in a free exchange of ideas, and there shall be no university rule or procedure that in any way abridges the rights of freedom of speech, expression, petition and peaceful assembly as set forth in the U.S. Constitution.



2. Each student shall have the right to participate in all areas and activities of the university, free from any form of discrimination, including harassment, on the basis of race, color, national or ethnic origin, religion, sex, disability, age, sexual orientation, genetic information or veteran status in accordance with applicable federal and state laws.
3. A student has the right to personal privacy except as otherwise provided by law, and this will be observed by students and University authorities alike.
4. Each student subject to disciplinary action arising from violations of university student rules shall be assured a fundamentally fair process.

Students' Responsibilities

1. A student has the responsibility to respect the rights and property of others, including other students, the faculty and the administration.
2. A student has the responsibility to be fully acquainted with the published University Student Rules found in the Student Handbook, Student Code of Conduct, on our website, University Catalog and students must comply with them and the laws of the land.
3. A student has the responsibility to recognize that student actions reflect upon the individuals involved and upon the entire university community.
4. A student has the responsibility to recognize the University's obligation to provide an environment for learning.
5. A student has the responsibility to check their university email for any updates or official university notification.
6. We expect that students will behave in a manner that is dignified, respectful, and courteous to all people, regardless of sex, ethnic/racial origin, religious background, sexual orientation or disability. Behaviors that infringe on the rights of another individual will not be tolerated.

The complete academic calendar is available online:

<https://www.tamusa.edu/provost/academic-calendar.html>

**Schedule***

Week	Week of	Experiment	Assignment
1	Jan 21	Introduction, report writing, lab safety	
2	Jan 28	Water laboratory measurements	pre-lab Quiz Data sheet due: Feb 4
3	Feb 4	Alkalinity	pre-lab Quiz Report #1 due Feb 11
4	Feb 11	Jar test	pre-lab Quiz Report #2 due Feb 18
5	Feb 18	Phosphates	pre-lab Quiz Report #3 due Mar 4
6	Feb 25	Week 2: Spectrophotometer and TNT Hach test	
7	Mar 4	Calcium and water hardness Week 1: titration	pre-lab Quiz Report #4 due Mar 18
8	Mar 11	SPRING BREAK	
9	Mar 18	Calcium and water hardness Week 2: Ca ISE, titration, Hach test	pre-lab Quiz Report #5 due Mar 25
10	Mar 25	Nitrates	pre-lab Quiz Report #6 due Apr 1
11	Apr 1	Total Suspended Solids	pre-lab Quiz Report #7 due Apr 8
12	Apr 8	Chemical Oxygen Demand (COD)	pre-lab Quiz Report #8 due Apr 15
13	Apr 15	Biological Oxygen Demand (BOD)	pre-lab Quiz Report #9 due Apr 22
14	Apr 22	Chlorine residual	pre-lab Quiz Report #10 due Apr 29
15	Apr 29	Open	

*These are the tentative topics. Instructor reserves the right to make changes as deemed necessary.

Data Sheets and calculations: These will be graded for correctness and accuracy, not just completion.

Grading:

Pre-lab quiz is worth 10 points x 10 = 100 points

Every lab report is worth 30 points x 10 (including datasheet) = 300 points

Total points = 400 points



There will be NO extra credit given. Data sheets, quizzes, and written lab reports the only opportunities students have to earn points in this course.

$$\text{Your grade \%} = \left(\frac{\text{Total points earned}}{400} \right) * 100$$

All laboratory report/worksheet grades will be posted to Blackboard. However course percentages, letter grades, etc. are not to be considered as official and students should use caution when using those to evaluate overall course grades. To calculate your, grade use the equation above. Using that equation, letter grades will be determined as:

Letter Grades:	A:	90.0 - 100%
	B:	80.0 - 89.99%
	C:	70.0 - 79.99%
	D:	60.0 - 69.99%
	F:	0 - 59.99%

IMPORTANT. There will **not** be CR/NC option for the Spring 2024 semester.