Chemical Quantitative Analysis (Chemistry 2401) Syllabus & Tentative Schedule
Sam Houston State University – Spring 2018

Course description in terms of learning outcomes: Chemical quantitative analysis is a 4 credit, 200 level course that aims to help students gain a deeper understanding of calibrated measurements of concentration. The course consists of four units that focus on training students to (1) design and use sample preparation equations, (2) prepare histograms and estimate and interpret confidence intervals for a given set of experimental results, (3) draw up a recipe for preparing a buffered solution at any specified pH, predict chemical concentrations in and pH of acid/base buffering systems, (4) to use optical spectroscopy, titrations and least squares regression to measure how much of a given chemical is present in a solution, and (5) isolate individual components from complex samples via chromatography. This course is accompanied by a four-hour laboratory that focuses on implementing the concepts being covered in lecture, developing good analytical technique, developing basic data analysis & reporting skills.

Instructor: David E. Thompson, Ph.D.
Office Hours: I am happy to meet with you as needed. Standard office hours will be right after class on MWF. Please catch me after class to let me know if you will be stopping by. Meetings at alternate times can be scheduled via email, or phone.
Contact information: david.thompson@shsu.edu, 936 294 3270, Office in room CFS317J

Lecture: Chemistry and Forensic Science (CFS) 103
Lab: Wet Chemistry Labs will be held in CFS 309. Dry labs will be held in a location to be determined.
Blackboard Login Page: https://shsu.blackboard.com

Required Resources for this course:

TI 84 or similar scientific graphing calculator
Text: *Exploring Chemical Analysis Fifth Edition*, by Daniel C. Harris
Lab Manual and Notes packet: *Available at the campus bookstore*
Lab Notebook: *Hayden McNeil Student Lab Notebook with permanent binding & 50 carbonless duplicate sets*

Grading: Your grade will be based upon your performance on:

Midterm exams (3@ 200 pts)	600 points
Final exam	200 points
Laboratory (9 @ 20 pts)	180 points
Reaction paper or Documentary	20 points
Total	1000 points

Midterm Exams: (60 % of total grade)
Midterm exams (See attached schedule for dates) are closed book exams. There will be a midterm exam at the end of each of the first three units. Exam questions may a variety of answer formats (essay, multiple choice, calculation etc.).

Final Exam: (20 % of total grade)
The final exam is worth 200 points and will consist of material from Unit 4, and review material from units 1, 2, and 3.

Laboratory (18 % of total grade)
The laboratory schedule will be posted on Blackboard. The first labs consist of Microsoft Excel and computational exercises. The remaining labs involve chemical measurements. Because I am committed to continually improving the lab, expect changes to lab instructions over the course of the semester. Major changes will be completed at least three days prior to the beginning of lab – minor changes may be made within the week of the lab itself. Safety and effective teamwork are important. Failing to observe safety precautions, (i.e. wearing goggles, using the hood when appropriate, safe disposal of chemical spills at the balances and dispensing areas etc.), or failing to fully participate (arriving late, leaving early etc…) may negatively impact your grade. One group will be assigned to clean the lab at the end of each lab. No lab grades are dropped.

Reaction Paper or Documentary (2 % of total grade)
Either: (A) Attend one science-related seminar or convocation that is given by a professor or a visiting speaker. The speaker must be a professional in their field. Talks given by Sam Houston undergraduate or graduate students do not count for this exercise. The talk must be publicly advertised so that the audience is drawn from more than one class. Ask a question during the talk, or in the public question and answer period at the end of the talk on some aspect that intrigued or puzzled you. Write a quick 1 to 2-page paper that includes (1) a summary of what it was that intrigued or puzzled you, (2) the question that you asked, (3) the response that you were given, and (4) a comment on whether or not you felt the answer was satisfactory. Include the title of the talk, the presenter's name and affiliation, and the date and place where the talk was given. The point of the exercise is to encourage you to be a part of the community by actively engaging a seminar speaker with a question, not to spend lots of time composing the perfect essay. The deadline for uploading reaction papers to Blackboard **is the Saturday before the last week of regular classes.**

OR (B) View the full documentary on the life of Chemist Percy Julian and participate in the discussion following the viewing. The documentary will be shown in the last week of classes and will begin after lab checkouts have been completed.

Accommodation: Any student with a disability that affects his/her academic functioning should contact the Services for Students with Disabilities (SSD) at the Lee Drain North Annex, (telephone 936-294-3512, TDD 936-294-3786, and e-mail disability@shsu.edu) to apply for accommodations. In the event that accommodations are approved by SSD, the student is advised to schedule an appointment with the course instructor in order to present his/her accommodation forms and discuss the arrangements for the accommodations.

Collaboration: In general, I encourage you to work with others. Collaboration will enable you to get much more out of the class than if you work alone. Specifically I would encourage you to work with others to prepare for exams and to discuss laboratories and lectures. Your lab reports must be in your own words (No direct copying of text) and give appropriate credit to all relevant sources, including fellow students with whom you worked. No collaboration is allowed during exams, and submitting answers that you have not derived yourself is prohibited in all submitted work.

Attendance and make-up policy: Attendance will be taken in lecture, but attendance at lectures is not required and does not affect your grade. That being said: (1) you are responsible for all of the material covered in class, and (2) I will work to make the lectures as useful and relevant as I can. If you miss a lecture, check Blackboard for materials and/or arrange to obtain notes from a fellow student. Unexcused laboratory, assignment and exam absences will result in a grade of 0 for all grades based on the exams and experiments that were missed. Assignments and lab write ups that are late because of **unexcused reasons or absences** [1] receive a grade of zero and cannot be made up.

[1] An excused absence is one that you get BEFORE you miss class, unless you are really ill or in an extreme emergency situation, in which case you should notify the class professor as soon as you can, or get a friend or family member to do so. You should be able to provide official written documentation in support of excused absences, and may be requested to do so. For absences due to athletic, religious or other reasons, notify me in **advance** via email, and be ready to provide written verification from your professor, coach, etc…. **Any other absence is an unexcused absence.** When you have an excused absence, the missed work must be made up at a different time. It is your responsibility to reschedule and complete coursework missed due to an excused absence.

CELL PHONES AND ELECTRONIC DEVICES
Lectures: With the exception of approved graphing calculators, no other electronics (for example cell phones and computers) are allowed during lecture, unless the user has requested and received permission from the instructor to use a specific device. The first violation of this policy in lecture will be met with a warning. If there are subsequent violations, the student may be asked to move the back rows of the classroom or to leave, and the lecture will pause until this has been accomplished.

Exams: The visible presence of a cell phone, earbuds or other electronic device (excepting approved calculators) during the exam is not permitted and will be considered a form of cheating. Exceptions will be granted to individuals who have requested and received permission to use a specific device from the instructor.

ACADEMIC DISHONESTY
All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain honesty and integrity in the academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The University and its official representatives may initiate disciplinary proceedings against a student accused of any form of academic dishonesty including but not limited to, cheating on an examination or other academic work, which is to be submitted, plagiarism, collusion and the abuse of resource materials. ***Specific policy for chem. 2401: First violations will automatically result in a grade of 0 for the work in question. Second violations will result in failure of the course.***

STUDENT ABSENCES ON RELIGIOUS HOLY DAYS POLICY
Section 51.911(b) of the Texas Education Code requires that an institution of higher education excuse a student from attending classes or other required activities, including examinations, for the observance of a religious holy day, including travel for that purpose. Section 51.911 (a) (2) defines a religious holy day as: "a holy day observed by a religion whose places of worship are exempt from property taxation under Section 11.20…." A student whose absence is excused under this subsection Apr not be penalized for that absence and shall be allowed to take an examination or complete an assignment from which the student is excused within a reasonable time after the absence.

University policy 861001 provides the procedures to be followed by the student and instructor. A student desiring to absent himself/herself from a scheduled class in order to observe (a) religious holy day(s) shall present to each instructor involved a written statement concerning the religious holy day(s). The instructor will complete a form notifying the student of a reasonable timeframe in which the missed assignments and/or examinations are to be completed.

STUDENTS WITH DISABILITIES POLICY:
It is the policy of Sam Houston State University that individuals otherwise qualified shall not be excluded, solely by reason of their disability, from participation in any academic program of the university. Further, they shall not be denied the benefits of these programs nor shall they be subjected to discrimination. Students with disabilities that might affect their academic performance should register with the Office of Services for Students with Disabilities located in the Lee Drain Annex (telephone 936-294-3512, TDD 936-294-3786, and e-mail disability@shsu.edu). They should then make arrangements with their individual instructors so that appropriate strategies can be considered and helpful procedures can be developed to ensure that participation and achievement opportunities are not impaired.

SHSU adheres to all applicable federal, state, and local laws, regulations, and guidelines with respect to providing reasonable accommodations for students with disabilities. If you have a disability that Apr affect adversely your work in this class, then I encourage you to register with the SHSU Services for Students with Disabilities and to talk with me about how I can best help you. All disclosures of disabilities will be kept strictly confidential. NOTE: No accommodation can be made until you register with the Services for Students with Disabilities.

VISITORS IN THE CLASSROOM
Only registered students may attend class. Exceptions can be made on a case-by-case basis by the professor. In all cases, visitors must not present a disruption to the class by their attendance. Students wishing to audit a class must apply to do so through the Registrar's Office.