CHEM 1441 Spring 2017 Syllabus
Section 002 & 005 TR 11:00 AM – 12:20 PM (Room: CRB 114)

Instructor: Dr. Seiichiro Tanizaki (Profile URL: https://www.uta.edu/profiles/seiichiro-tanizaki)
Office Hours: Monday from 12:00 PM to 1:00 PM or by appointment.
300 G Science Hall, 817.272.1056, tanizaki@uta.edu.

Required Materials:
1) Access to the online tutoring system: ALEKS (www.aleks.com). Instructions for the ALEKS online homework system are posted on Blackboard (https://elearn.uta.edu).
2) General Chemistry 1, 1st Edition, by Jimmy R. Rogers. This textbook, in the form of an ebook, is included with the ALEKS online homework system. A hard copy of the textbook is also available at the UT Arlington Bookstore.
3) **CHEM 1441 Lab Manual** (You need the most current edition sold at the UTA bookstore) and **duplicating-page lab notebook** (sold at the UTA bookstore).
4) A scientific calculator (non-programmable and non-graphing; for example, Texas Instrument 30 XIIS is recommended).
5) i>clicker 2: You can purchase an i>clicker 2 at the UTA bookstore. No cell phone options or other clicker models will be allowed in this course.

Course Prerequisites: This course is intended for science majors, and all students should have completed MATH 1302 or its equivalent. Students who have not had high school chemistry are advised to take CHEM 1400 first. To receive credit for CHEM 1441, you must also be enrolled in a CHEM 1441 lab. Engineering majors are encouraged to take CHEM 1465 instead of this course, and students pursuing a career in nursing should take CHEM 1451 instead of CHEM 1441. All other non-science majors should take CHEM 1345 and CHEM 1346 instead of CHEM 1441 and CHEM 1442.

Course Description and Student Learning Outcomes: Upon completing the course, the student should
1) understand fundamental chemical concepts, including atomic and molecular structure, chemical bonding, some chemical reactions, the relationship of the electronic structure of elements to the periodic table, and periodic physical and chemical properties of elements and compounds;
2) perform quantitative calculations related to chemical stoichiometry, the behavior of gases, and enthalpy changes; and
3) be prepared to enter CHEM 1442.

Attendance Policy: At The University of Texas at Arlington, taking attendance is not required but attendance is a critical indicator in student success. Each faculty member is free to develop his or her own methods of evaluating students' academic performance, which includes establishing course-specific policies on attendance. As the instructor of this section, I will be using the i>clicker 2 student response system in class this term. Participation with i>clicker 2 will account for 5% of your course grade. However, while UT Arlington does not require instructors to take attendance in their courses, the U.S. Department of Education requires that the University have a mechanism in place to mark when Federal Student Aid recipients "begin attendance in a course." UT Arlington instructors will report when students begin attendance in a course as part of the final grading process. Specifically, when assigning a student a grade of F, faculty report the last date a student attended their class based on evidence such as a test, participation in a class project or presentation, or an engagement online via Blackboard. This date is reported to the Department of Education for federal financial aid recipients.

Expectations for Out-of-Class Study: Beyond the time required to attend each class meeting, students enrolled in this course should expect to spend at least an additional twelve hours per week of their own time in course-related activities, including reading required materials, completing assignments, preparing for exams, and preparing for lab.

Other Requirements:
1) Read this syllabus carefully. You are responsible for knowing all of the course policies listed in this syllabus.
2) Prior to class, read the chapter which will be covered in lecture.
3) Review your lecture notes after each class. Correct obvious errors and note topics which require further study or clarification.
4) Work **all** of the homework problems. Do not look in the solutions manual until you have given your **best** effort to solve the problem on your own. **Practice the problems that you find difficult until you are able to solve them without consulting the solutions manual. This is the one of the most effective strategies that you can use to prepare for exams.**
5) Don't procrastinate. These concepts take time to sink in, and you may have to practice these exercises over a period of many days in order master the necessary skills.

Grading: The grade in this course will be determined in the following manner.

Grade Category	Category Weight
Mid-Term Exam Average	40%
Comprehensive Final Exam	15%
Laboratory Average	25%
Homework Average	10%
Lab Problem Session Average	5%
Class Participation Average	5%
Total Course Score	**100%**

1) Four mid-term exams will be given. These exams will cover the reading, lecture material, and assigned problems. The final exam will be comprehensive and will be given on **Wednesday, May 10, 2017, 5:30-8:00 PM.**
2) **Make-up Exam Policy.** No make-up exams will be given, and any missed exams will result in a grade of zero. However, the final exam score will replace the lowest mid-term exam score if it is to the student's benefit. The final exam score will not be replaced.
3) Exams will not be curved, and individual extra-credit assignments will not be given.
4) **If you drop or fail CHEM 1441, grades earned in the lab cannot be carried over when you re-take CHEM 1441.**
5) The letter grade is assigned according to the following scale.

Total Numerical Grade (in %)	90 and above	80 – less than 90	70 – less than 80	60 – less than 70	Below 60
Letter Grade	A	B	C	D	F

Major Assignments and Examinations
Five exams will be given. These exams will cover the reading, lecture material, homework, and assigned problems. Four mid-term exams (Exam 1 through Exam 4) will be administered during the semester in class period. The final exam is a comprehensive, departmental exam, and it will be administered in **two hours and 30 minutes**. Web-based homework problems will be assigned and graded. More information (Registration, Login and Grading Policy) about the online homework system will be posted on the Blackboard course site. None of the homework assignments will be dropped. All due dates for homework assignments are directly available on the online homework site. You are responsible for checking them and completing them by the due dates.

Lab Problem Sessions
Lab Problem Sessions will be conducted during the first few minutes of most labs. These sessions are intended to provide a setting for students to work additional problems based on current lecture topics. During these sessions, students are encouraged to work in groups so that the immediate feedback from their peers and from the laboratory teaching assistant can help dispel common chemistry misconceptions. At the end of each session students will show mastery through a graded quiz, contributing 5% to the each student's overall average in the course.

Examination Needs
You must bring the following to each examination.
1) Scientific Calculator (You may not use a graphing calculator or a calculator capable of storing alpha-numeric/textual material).
2) No. 2 pencils with eraser.
3) NCS Answer Sheet 4521, available at the UTA Bookstore (or, an answer form specified by your instructor).
4) UTA Student ID Card.
5) Students are NOT allowed to have access to cell phones during any exam.

Blackboard
Students are responsible for checking the blackboard course website (**https://elearn.uta.edu/**) as well as their UTA email (the one ending in "mavs.uta.edu") for correspondence and announcements related to the course. Instructional materials (videos, activity sheets, study guides, etc.) will be posted on the course website.

Participation: I will be using the i>clicker student response system in class this term. i>clicker 2 helps me to understand what you know and gives everyone a chance to participate in class. Participation with i>clicker 2 will account for 5% of your course grade. **You must purchase the model "i>clicker 2".** It is sold at the UT Arlington Bookstore. No cell phone options or other clicker models will be allowed in this course.

Participation Clicker Registration Policy
To receive credit for the responses you submit with i>clicker, you must register correctly by the deadline, **January 23, 2017**. Late registration will not excuse you for the due date. Students will not receive participation credit after the deadline if they do not register the device correctly. Keep in mind that an i>clicker device can be registered only for one student per semester. One device cannot be registered for more than one student. One student can register only one i>clicker device for this course. Registering multiple devices will result in a zero score.

How to register your i>clicker 2
1) Log into Blackboard (https://elearn.uta.edu) and select the course.
2) Click on the "i>clicker 2 Registration" link (see the picture below) under "Before You Start".

3) Enter your i>clicker remote ID (printed on the back of your device) and click "**Submit**".
4) Your clicker is all set to be used in the course. Remember that your device can be registered only for yourself. If you share a clicker that you register, then you will not receive any participation credit for this course.

How can I verify whether my i>clicker registration is completed correctly?
Shortly after each class, a participation grade is posted in your Blackboard account. If your score is zero yet you used your clicker in class, then that means that you have not registered your device or that your device was registered incorrectly. You need to contact me immediately and correct your registration immediately. Otherwise, you will keep receiving a zero score until you register the device correctly.

I just realize that I was not getting my participation grade. I attended classes. So should I receive the participation grade?
It is your responsibility to check your participation grade after each class. The participation grade is posted shortly after each class. If your score is missing or incorrect, you must contact me by the next day (at the latest). All participation grade is final unless you contact me right away.

Cheating
I consider bringing and using a fellow student's i>clicker to class to be cheating and a violation of the University Honor Code. If you are caught with a clicker other than your own or have votes in a class that you did not attend, you will forfeit all clicker points and may face additional disciplinary action.

Participation Grade Calculation Policy
If you forget the clicker of if the battery runs out, you will receive a zero for that day. I will collect participation scores from **January 24, 2017 to May 4, 2017.** In a class period, each question is worth one point. By answering a question, you will automatically receive 0.9. Then, if your answer is correct, you will receive 0.1. Also, if you submit your answers to all questions during a class period, you will receive one point. Otherwise, you will receive a zero, and no partial credit will be given. Each participation score per session is calculated as the "percentage" by dividing the sum of points you earned by the maximum possible point score. Scores (in percentage) of all sessions will be treated equally. The following examples describe how a participation score is calculated per session.
Example 1) Suppose there are two clicker questions and you get both right.

Performance score	Question #1: 0.9 + 0.1 = 1.0
	Question #2: 0.9 + 0.1 = 1.0
Participation score	You were present and submitted the answers for both. So you get 1.0.
Total score	3.0 / 3.0 = 100%

Example 2) Suppose there are two clicker questions and you get both wrong.

Performance score	Question #1: 0.9 + 0.0 = 0.9
	Question #2: 0.9 + 0.0 = 0.9
Participation score	You were present and submitted the answers for both. So you get 1.0.
Total score	2.8 / 3.0 (93%)

Example 3) Suppose there are two clicker questions and you only answer one question (correctly) because you arrived late.

Performance score	Question #1: 0 + 0 = 0
	Question #2: 0.9 + 0.1 = 1.0
Participation score	You were not present and did not submit the answers for both. So you get 0.
Total score	1.0 / 3.0 = 33%

The **four** lowest scores will be dropped to compensate for unforeseen situations (for example, missing a class due to illness, missing a score due to a technological issue you experience with the device, not bringing a clicker, etc.). After the **four** lowest scores are dropped, the final participation grade is calculated as the average of all participation scores (in percentage).

Homework Grade: Your homework grade will be calculated using the following formula.

Homework Grade = 0.5 × (**Chapter Average**) + 0.5 × (**Course Mastery**)

Chapter Average is the average of homework scores (including the pre-course assignment score). Course Mastery (or Pie Progress in Gradebook) represents the topics you have learned in this course by 11:59 pm (CT) on **Tuesday, May 9, 2017**. Course Mastery is NOT equivalent to Chapter Average. The student might have a 100% average in all chapter assignments, but you might not have 100% Course Mastery because topics you answer incorrectly during each periodic assessment will be added back to your "ALEKS Pie".

There are two ways to improve Course Mastery. 1) If you complete a homework assignment before its due date, then you can work on any topics left on the "ALEKS Pie". 2) After you complete the last assignment, you will be prompted to take the final assessment. After the final assessment, you will be able to complete any topics left on "ALEKS Pie". **Our recommendation is the first option:** Complete each homework assignment before its due date and start working on left-over topics that you need to master so that you can avoid cramming just before the final exam.

Tentative Lecture Schedule: The following represents a *tentative* schedule of lectures and examination material for this semester. Tentative exam dates are specified in **bold**. The exact dates of the four midterm exams will be announced in class. All due date of homework assignments are available directly on its website. You will be responsible for checking them and completing them by the due dates. ***"As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course – Seiichiro Tanizaki".*** **The exam dates listed are tentative and, therefore, might be changed. You will be responsible to appear at the exact exam dates: no make-up exam will be given (See the Makeup Exam Policy in this syllabus). Note that the Final Exam is scheduled for Wednesday, May 10, 2017 from 5:30 to 8:00 PM. Make sure to save this date because no make-up final exam will be given.**

Month	Date	Lecture Material (Reading Assignments)
January	17, 19	Course Orientation and begin Chapter 1 "Introduction to the Study of Chemistry".
	24, 26	Chapter 2 "Atoms, Molecules, and Ions".
Jan/Feb	31, **2**	Chapter 3 "Stoichiometry". **Exam 1 on Chapters, 1, 2 and 3.**
February	7, 9	Chapter 4 "Reactions in Aqueous Solutions".
	14, 16	Finish Chapter 4.
	21, 23	Chapter 5 "Gases".
Feb/March	28, **2**	**Exam 2 on Chapters 4 and 5.**
March	7, 9	Chapter 6 "Thermochemistry".
	14, 16	**Spring Vacation: Classes do not meet.**
	21, 23	Chapter 7 "The Electronic Structure of Atoms".
	28, 30	Finish Chapter 7.
April	4, **6**	**Exam 3 on Chapters 6 and 7.** Chapter 8 "Introduction to Chemical Bonding".
	11, 13	Finish Chapter 8.
	18, 20	Chapter 9 "Molecular Shapes and Polarity".
	25, **27**	Finish Chapter 9. **Exam 4 on Chapters 8 and 9.**
May	2, 4	Chapter 10 "Valence Bond Theory and Molecular Orbital Theory".
	10	**Comprehensive Departmental Final Examination**.

Important Dates

January 16	Martin Luther King Jr. Day holiday: Classes do not meet.
January 17	First Day of Classes.
February 01	Census date.
March 13 – 18	Spring Vacation: Classes do not meet.
April 03	Last day to drop classes: Submit requests to advisor prior to 4:00 pm (CT).
May 05	Last day of classes.
May 10	Final Exam from 5:30 PM to 8:00 PM.

Other Course Policies

Cell Phones and Pagers (or any un-necessary electronic gadgets): Please silence all cell phones and pagers prior to class.

Student Support Services: UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at http://www.uta.edu/universitycollege/resources/index.php.

Chemistry Clinic: The Chemistry Clinic, located in Room 318 Science Hall, will be staffed with tutors available to answer your questions related to lecture and homework. This service is free for all UT-Arlington students enrolled in Chemistry 1441 and 1442. Unless otherwise posted, the Chemistry Clinic will be open the following hours:

Monday – Thursday, 9:00 AM – 7:00 PM
Friday, 9:00 AM – 5:00 PM
Saturday, 11:00 AM – 4:00 PM

(Note: The Chemistry Clinic will be closed during Spring Break, as well as any day that the University is closed due to inclement weather.)

Science Education and Career Center: The Science Education and Career Center, located in Room 105 of the Life Science Building, provides a variety of materials for assisting Chemistry students, including old Chemistry 1441 exams.

UTSI: The University Tutorial and Supplemental Instruction office provides tutoring services for this class. Supplemental Instruction, or SI, is a free service that helps students from this class work in groups to understand class concepts. Tutoring helps students develop and grow strong study habits by working one-on-one with a tutor. To find out when and where your class's SI sessions are, check the SI schedule at www.uta.edu/utsi. To register for tutoring services, visit the UTSI Office in Ransom Hall Room 205. For more information, visit www.uta.edu/utsi or call 817-272-2617.

The IDEAS Center: **(**2nd Floor of Central Library) It offers **free** tutoring to all students with a focus on transfer students, sophomores, veterans and others undergoing a transition to UT Arlington. To schedule an appointment with a peer tutor or mentor email IDEAS@uta.edu or call (817) 272-6593.

Drop Policy: Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance**. Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (http://wweb.uta.edu/aao/fao/).

Disability Accommodations: UT Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including *The Americans with Disabilities Act (ADA), The Americans with Disabilities Amendments Act (ADAAA),* and *Section 504 of the Rehabilitation Act.* All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of **a letter certified** by the Office for Students with Disabilities (OSD). Only those students who have officially documented a need for an accommodation will have their request honored. Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting: **The Office for Students with Disabilities, (OSD)** www.uta.edu/disability or calling 817-272-3364. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability. **Counseling and Psychological Services, (CAPS)** www.uta.edu/caps/ or calling 817-272-3671 is also available to all students to help increase their understanding of personal issues, address mental and behavioral health problems and make positive changes in their lives.

Non-Discrimination Policy: The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit uta.edu/eos

Title IX Policy: The University of Texas at Arlington ("University") is committed to maintaining a learning and working environment that is free from discrimination based on sex in accordance with Title IX of the Higher Education Amendments of 1972 (Title IX), which prohibits discrimination on the basis of sex in educational programs or activities; Title VII of the Civil Rights Act of 1964 (Title VII), which prohibits sex discrimination in employment; and the Campus Sexual Violence Elimination Act (SaVE Act). Sexual misconduct is a form of sex discrimination and will not be tolerated. *For information regarding Title IX, visit* www.uta.edu/titleIX or contact Ms. Jean Hood, Vice President and Title IX Coordinator at (817) 272-7091 or jmhood@uta.edu.

Academic Integrity: Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

> *I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.*
>
> *I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.*

UT Arlington faculty members may employ the Honor Code in their courses by having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System *Regents' Rule* 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University. Additional information is available at https://www.uta.edu/conduct/.

Lab Safety Training: Students registered for this course must complete all required lab safety training prior to entering the lab and undertaking any activities. Once completed, Lab Safety Training is valid for the remainder of the same academic year (i.e., Fall through Summer II) and must be completed anew in subsequent years. There are no exceptions to this University policy. Failure to complete the required training will preclude participation in any lab activities, including those for which a grade is assigned.

Electronic Communication: UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at http://www.uta.edu/oit/cs/email/mavmail.php.

Campus Carry: Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. Under the new law, openly carrying handguns is not allowed on college campuses. For more information, visit http://www.uta.edu/news/info/campus-carry/

Student Feedback Survey: At the end of each term, students enrolled in face-to-face and online classes categorized as "lecture," "seminar," or "laboratory" are directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback via the SFS database is aggregated with that of other students enrolled in the course. Students' anonymity will be protected to the extent that the law allows. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law and aggregate results are posted online. Data from SFS is also used for faculty and program evaluations. For more information, visit http://www.uta.edu/sfs.

Final Review Week: For semester-long courses, a period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Emergency Exit Procedures: Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit, which is located in front and back. When exiting the building during an

emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.

Emergency Phone Numbers: In case of an on-campus emergency, call the UT Arlington Police Department at **817-272-3003** (non-campus phone), **2-3003** (campus phone). You may also dial 911. Non-emergency number 817-272-3381.

This course satisfies the University of Texas at Arlington core curriculum requirement in life and physical sciences. The italicized student learning outcomes required of core courses below will be assessed for each student in the laboratory portion of the course. The final lab report will be assessed to determine how a student has mastered critical thinking, communication, and empirical and quantitative skills. A teamwork assessment (peer evaluation) will be completed by each student in lab to determine how students work together in lab groups to achieve the student learning outcomes described below.

Student Learning Outcomes:

- understand fundamental chemical concepts, including atomic and molecular structure, chemical bonding, some chemical reactions, the relationship of the electronic structure of elements to the periodic table, and periodic physical and chemical properties of elements and compounds.
- perform quantitative calculations related to chemical stoichiometry, the behavior of gases, and enthalpy changes (empirical and quantitative skills)
- learn the scientific process by designing and conducting experiments, collecting and analyzing data, and presenting results, in both written and oral formats (critical thinking, communication)
- learn essential laboratory procedures and protocols (teamwork)
- *Critical Thinking Skills*: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information;
- *Communication Skills*: to include effective development, interpretation and expression of ideas through written, oral and visual communication
- *Empirical and Quantitative Skills***:** to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions
- *Teamwork***:** to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal

The Signature Assignment for satisfying the Core Curriculum Requirement in CHEM 1441 will be "Experiment UTA-509: Spectrophotometric Determination of Purity and Concentration".