CH4500, Capstone, Spring 2018
Instructor: Dr. Tania Houjeiry.
Email: thoujei@clemson.edu
Meeting Time: Wednesday 5:45-8:30 pm **Room:** HTL158
Office hours: M, T and Th 11:00 am – 1:00 pm or by appointment
Office: 279 Hunter Chemistry Building.

Web Access: All the important information regarding this course can be found on Canvas course web page.

Course Objectives: CH4500 is the Chemistry Capstone course intended for Chemistry majors in their final year of study. This course is part of the Clemson Think^2 (CT^2) quality enhancement plan that focuses on critical thinking, a skill very vital for your success in college and after your graduation. The main objectives for this course is to introduce students to the tools that help them (1) synthesize knowledge of all of their experiences in the chemistry curriculum; (2) develop critical thinking to improve their creativity and problem solving skills; and (3) develop literacy in some of the major scientific and technological challenges of the 21st century.

Learning Outcomes: students completing this course will demonstrate:

1. A strong background in chemical research fields.
2. Self-directed learning skills.
3. The ability to develop intrinsic interest in subject matter and, subsequently, motivation to learn how to think critically, etc...
4. Analyze problems from multi-disciplinary viewpoints, and integrate information from many different sources.
5. Demonstrate collaborative learning practices.
6. Construct cognitive and character skills which are important factors in creating critical thinking,

Grading: The class has total of 200 points.

Grades will be assigned according to the following scale:

A	200 – 180 pts	**B**	179 – 160 pts	**C**	159 – 140 pts	**D**	139 – 120 pts	**F**	<119 pts

Attendance is *mandatory*. ***Each attended class counts as 2 points, total of 30 points***. All participants are expected to take an active and respectful role in class discussions. *Any student with 2 or more unexcused absences will be dropped from the course and/or receive a grade of F*.

Excused absences from class include documented illness, death of an immediate family member and other documented crises, call to active military duty or jury duty, religious holy days, and official university activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid excuse. Consideration will also be given to students whose children experience serious illness.
Note 1: Travel plans as part of university activities should be discussed with your instructor at **least one week** before they occur.
Note 2: documents for illness should be issued before the class time.
Note 3: the student is responsible for all material discussed in class.

Electronics Policy: Computers are **not allowed** in class **unless** they are used to follow and write down notes. Seeing any student using his/her laptop for other reasons will be prevented from bringing his/her laptop to class. Cell phones **are not allowed** and should be kept on "silent" mode.

Group Work: a large portion of the course work will be completed in groups. Groups of 4 students will be assigned by the end of week 1 (during week 2 meeting). Each student is expected to actively and respectfully participate in his/her group. Any student failing to participate in a given activity will receive a score of zero for that activity.

This class includes the following set of activities:

Class Participation is required for each class session. ***Class participation has total of 15 points***, 1 point for active participation per week. Class participation is reflected in both group participation or/and individual participation. The instructor will inform you of the type of participation expected during the class meeting. The purpose of these discussions is to help develop meaningful interpretations of the course topics and readings. The discussions will be either facilitated by a set of study questions or individual questions prepared while reading articles and attending presentations.

Group Discussion: ***This assignment counts for 10 points***. In this class activity students are assigned papers to read and discuss in class with a guest speaker.

Individual Journals: each class member is required to keep a journal during the term. The journal is meant to be a portfolio of ideas and should represent a continuing account of that which interests, confuses, or otherwise stimulates your critical thinking about course material.
Journal entries should address the topic of the reading material. You are encouraged to include your own experiences as practicing scientists and students of science. Each journal should:

- Indicate critical attitude toward the course material and the discussions held in class.
- Show learning as well as critical thinking about the topics covered.
- Show what you find problematic or hard to understand.
- Have questions you want to ask and answers to your questions.
- Show what points have come through as a major intellectual breakthrough either while reading or attending the class discussion.

Each journal entry is preferred not to exceed two pages. A copy of the journal entry should be turned in the week they are due using Turnitin on Canvas. Journal entries have variable point grades; each week assignment will specify the total points for the journal entry. Late submissions will receive a deduction penalty. The journals will be graded for breadth and depth; a rubric will be up for each journal entry. The journal entries are preferred to be typed.

There are total of seven individual journals assigned throughout the semester, each worth 5 points.

Group Journals: Group journals represent a summary of what the group learned from the reading assignments. Students are expected to have equal input in each assigned journal. A copy of the journal entry should be turned in the week they are due using Turnitin on Canvas. Late submissions will receive a deduction penalty. The journals will be graded for breadth and depth; a rubric will be up for this journal entry. The journal entries are preferred to be typed.

There are two group journals assigned throughout the semester, each worth 10 points.

Homework Assignment: One homework assignment will be handed in class and will cover basic chemistry knowledge to help you refresh your memory for DUCK exam. ***HW assignment is worth 5 points***.

Curriculum Vitae: as graduating students, you should have a strong CV before applying to jobs. CV will be graded according to a standard rubric that will be provided on Canvas. ***This assignment is worth 15 points***.

Group Presentations: A detailed guideline will be provided with rubric for the assignments. ***Each group presentation is worth 15 points***.

Guest Speakers: We will have 6 weeks of lecturers given by different guest speakers. Each guest speaker will talk about an area in chemistry research.

Reading Assignments: One group will find one recent paper related to one of the areas of research presented by guest speakers, the other groups should read the papers and **type down one question** for discussion. The questions should show thorough reading of the papers. The grade of this assignment is reflected in the group journal due with it.

Departmental Assessment is the standardized "Diagnostic of Undergraduate Chemistry Knowledge" exam provided by ACS. ***The DUCK exam counts towards 10 points of final grade***.

Critical thinking assessments: These pre- and post- critical thinking online assessments are given as part of Clemson CT^2 course requirement, participation is mandatory and ***worth 5 points for each assessment***.

For taking the pre-test go to: http://www.insightassessment.com and click on the Test Taker Login button on the upper right side. You should follow the instructions to download the applet for your particular browser. The login information is:

Username: s8ch450a

PW: clemson2018

The test closes 1/31/2018. Please let me know if there are any problems.

Critical Thinking Assignment: details of this assignment will be communicated in class and on canvas by the third week of classes. ***This assignment is worth 20 points***.

Extra credit: assignments will be offered at the discretion of the instructor.

Course Outline of CH4500: (this schedule and outline is subject to change)

Week	Date	Type of Activity	Week	Date	Type of Activity
1	**Jan 10**	Introduction- critical thinking pre-assessment (online)	**9**	**March 7**	Guest Speaker (J)
2	**Jan 17**	Group Discussion (J)	**10**	**March 14**	Guest Speaker (J)
3	**Jan 24**	Guest Speaker (J)	**~~11~~**	**~~March 21~~**	*Spring break – no class*
4	**Jan 31**	Guest Speaker (J)	**12**	**March 28**	Reading Assignments (J)
5	**Feb 7**	Guest Speaker (J)	**13**	**April 4**	Reading Assignments (J)
6	**Feb 14**	Group Presentation: Green chemistry	**14**	**April 11**	Critical Thinking Assignment Due
7	**Feb 21**	Guest Speaker (J)	**15**	**April 18**	Departmental Assessment
8	**Feb 28**	Group Presentation: Instrumentation	**16**	**April 25**	Critical thinking post-assessment (online) ETS Proficiency Profile test

Important notes:

- Assignments for every week will be available the week before.
- Group presentations' rubric and guidelines will be available 2 weeks before they are due.
- Journals are generally due end of the week of the activity, exceptions will apply.

Disabilities Act Information: Clemson University values the diversity of our student body as a strength and a critical component of our dynamic community. Students with disabilities or temporary injuries/conditions may require accommodations due to barriers in the structure of facilities, course design, technology used for curricular purposes, or other campus resources. Students who experience a barrier to full access to this class should let the professor know, and make an appointment to meet with a staff member in Student Accessibility Services as soon as possible. You can make an appointment by calling 864-656-6848, by emailing studentaccess@lists.clemson.edu, or by visiting Suite 239 in the Academic Success Center building. Appointments are strongly encouraged – drop-ins will be seen if at all possible, but there could be a significant wait due to scheduled appointments.

Academic Integrity: "As members of the Clemson University community, we have inherited Thomas Green Clemson's vision of this institution as a "high seminary of learning". Fundamental to this vision is a mutual commitment to truthfulness, honor, and responsibility, without which we cannot earn the respect of others. Furthermore, we recognize that academic dishonesty detracts from value of a Clemson degree. Therefore, we shall not tolerate lying, cheating, or stealing in any form". For more information visit http://www.clemson.edu/academics/academic-integrity/

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Withdrawals: According to the university withdrawal policy, last day to drop the course without receiving a "W" grade is **January 24th 2018**. Last day to drop a class with a "W" grade is **March 16th 2018**.

Late Instructor Policy: Students must remain in classroom for *15 minutes* past the scheduled start time of class if the instructor is late.