

Fall 2015

## **ENCE 6314**

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**ENCE 6314**  
**WATER AND WASTEWATER TREATMENT**  
**CHEMISTRY LABORATORY**  
**(Required)**

**ENCE 6314 Water and Wastewater Treatment Chemistry Laboratory** 1 cr.  
Laboratory provides hands-on analytical experience with various analytical techniques for determination of water pollution parameters. Three hours of lab per week.

**CLASS SCHEDULE**

Lab meetings: Fr 1:00 am – 4:00 pm, EN 513

**INSTRUCTOR CONTACT INFO AND OFFICE HOURS**

Guillermo J. Rincon, Ph.D.

Office hours: TTh 2:00 – 4:00 pm, EN 832

e-mail: [gjrincon@uno.edu](mailto:gjrincon@uno.edu)

**STUDENT LEARNING OBJECTIVES**

Students who satisfactorily complete this course will be able to:

- Solve acid-base equilibrium problems, with specific application to the carbonic acid system, and corrosion control by carbon dioxide removal.
- Analyze and solve solid-liquid equilibrium problems, with specific applications to control of scaling in pipes and hardness removal.
- Discuss oxidation-reduction principles, with applications to water and wastewater treatment.
- Interpret the results of common water quality laboratory analysis.
- Make use of common water quality testing equipment.

**ATTENDANCE POLICY**

Attendance is required. If you cannot attend the lab for any reason, call the instructor or the engineering administrative assistant and explain why. If you miss a lab without proper justification, automatically you

will get a zero in this lab. If you have justification to miss it, in order to get a grade you will have to write a lab report by your own.

**TEXTBOOKS AND OTHER MATERIAL**

- *Water Chemistry* by Vernon L. Snoeyink and David Jenkins, John Wiley & Sons (1980). ISBN 0-471-05196-9
- *Water Chemistry* by Mark Benjamin, Second Edition (2015), Waveland Press.
- *A Problem Solving Approach to Aquatic Chemistry* by James N. Jensen, John Wiley & Sons.
- *Aquatic Chemistry* by Stumm and Morgan, John Wiley & Sons.

**PREREQUISITES**

Consent of the department. Registration in ENCE 6313 Water and Wastewater Treatment Chemistry (Lecture) is strongly recommended.

**COURSE TOPICS**

DATE	TOPICS
Aug 28	Non-ideality correc. to equilibrium
Sep 04	Lab 1: The spectrophotometer and Beer's Law
Sep 11	Lab 2: Determination of Turbidity
Sep 18	Lab 3: Acid-Base titration
Sep 25	Alkalinity and the Carbonate System
Oct 02	First exam, problem session
Oct 09	Lab 5: Buffer design and intensity
Oct 23	Lab 6: Hardness determination
Oct 30	Problem session
Nov 13	Second exam. Phosphorus Prep. Thermo. Concepts
Nov 20	pE-log concentration diagrams
Dec 04	Review session
Dec 11, 2:00 pm– 4:00 pm	Final exam (comprehensive: Lab 1 - 7)



## Syllabus

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### **TENTATIVE DUE DATES FOR ASSIGNMENTS, EXAMS**

The lab reports are due one week after performing the lab experiments. The exam dates are the following:

- First exam, Oct 02
- Second exam, Nov 13
- Final exam, Dec 11

### **CRITERIA FOR GRADING, GRADING STANDARDS**

There will be three exams (two mid-term tests and the final exam, each with the same weight), worth 50 percent of the grade, and seven lab reports, worth 50 percent of the grade. The lab reports are not optional; they are mandatory. For every day of late submission of a lab report you will lose 10 points (in a 100-point scale).

The final letter grade is computed as follows: The overall numerical grade will be divided by the highest score in class, so that the best possible normalized score will be 100 points. If the normalized score is more than 90 points the grade will be an A; from 80 - 89, the grade will be a B; from 70 - 79, the grade will be a C; from 60 - 69, D; below 60, F.

### **ACADEMIC DISHONESTY POLICY**

Students are expected to conduct themselves according to the principles of academic integrity as defined in the statement on Academic Dishonesty in the UNO Student Code of Conduct. Any student or group found to have committed an act of academic dishonesty shall have their case turned over to the Office of Student Accountability and Advocacy for disciplinary action, which may result in penalties as severe as indefinite suspension from the University. Academic dishonesty includes, but is not limited to: cheating, plagiarism, tampering with academic records and examinations, falsifying identity, fabrication, or misrepresentation, and being an accessory to an act of academic dishonesty.

### **ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES**

It is University policy to provide, on a flexible and individualized basis, reasonable accommodations to students who have disabilities that may affect their ability to participate in course activities or to meet course requirements. Students who seek accommodations for disabilities must contact the Office of Disability Services prior to discussing their individual needs for accommodation with their instructors.



## Syllabus Attachment

Fall 2015

### Important Dates\*

Last day to adjust schedule w/out fee.....	08/18/2015
Semester Classes Begin.....	08/19/2015
Last day to adjust schedule w/fee, or withdraw with 100% refund .....	08/25/2015
Last day to apply for December commencement.....	09/25/2015
Final day to drop a course or resign.....	10/14/2015
Mid-semester examinations.....	10/05-10/09/2015
Final examinations .....	12/07-12/11/2015
Commencement .....	12/18/2015

\*Note: check Registrar's website for Saturday and A/B sessions, and for items not listed here: <http://www.registrar.uno.edu>

### Fall Semester Holidays

Labor Day .....	09/07/2015
Mid-semester break.....	10/15-10/16/2015
Thanksgiving .....	11/26-11/27/2015

### Withdrawal Policy – Undergraduate only

Students are responsible for initiating action to resign from the University (withdraw from all courses) or from a course on or before dates indicated in the current Important dates calendar. Students who fail to resign by the published final date for such action will be retained on the class rolls even though they may be absent for the remainder of the semester and be graded as if they were in attendance. Failure to attend classes does not constitute a resignation. Check the dates on the Registrar's website, <http://www.registrar.uno.edu>. Please consult The Bulletin for charges associated with dropping and adding courses.

### Incomplete Policy – Undergraduate only

The grade of I means *incomplete* and is given for work of passing quality but which, because of circumstances beyond the student's control, is not complete. The issuance of the grade of I is at the discretion of the faculty member teaching the course. For all graduate and undergraduate students, a grade of I becomes a grade of F if it is not converted before the deadline for adding courses for credit (as printed in the Important Dates Calendar) of the next regular semester including summer semester.

### Repeat Policy

When a student is permitted to repeat a course for credit, the last grade earned shall be the one which determines course acceptability for degree credit. A student who has earned a C or better in a course may not repeat that course unless, (1) the catalog description indicates that the course may be repeated for credit, or (2) the student's Dean gives prior approval for documented extenuating circumstances.

### Graduate Policies

Graduate policies often vary from undergraduate policies. To view the applicable policies for graduate students, see the Graduate Student Handbook:

<http://www.uno.edu/grad/documents/GraduateStudentHandbook2014.pdf>

### Academic Dishonesty Policy

<http://www.uno.edu/student-affairs-enrollment-management/documents/academic-dishonesty-policy-rev2014.pdf>

### Safety Awareness Facts and Education

Title IX makes it clear that violence and harassment based on sex and gender is a Civil Rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, etc. If you or someone you know has been harassed or assaulted, you can find the appropriate resources here:

<http://www.uno.edu/student-affairs-enrollment-management/>

### UNO Counseling Services and UNO Cares

UNO offers care and support for students in any type of distress. Counseling Services assist students in addressing mental health concerns through assessment, short-term counseling, and career testing and counseling. Find out more at <http://www.uno.edu/counseling-services/>. First-year students often have unique concerns, and UNO Cares is designed to address those students succeed. Contact UNO Cares through <http://www.uno.edu/fye/uno-cares.aspx>.

### Emergency Procedures

Sign up for emergency notifications via text and/or email at E2Campus Notification: <http://www.uno.edu/ehso/emergency-communications/index.aspx>. All emergency and safety procedures are explained at the Emergency Health and Safety Office: <http://www.uno.edu/ehso/>.

### Diversity at UNO

As the most diverse public university in the state, UNO maintains a Diversity Affairs division to support the university's efforts towards creating an environment of healthy respect, tolerance, and appreciation for the people from all walks of life, and the expression of intellectual point of view and personal lifestyle. The Office of Diversity Affairs promotes these values through a wide range of programming and activities.

<http://diversity.uno.edu/index.cfm>

### Learning and Support Services

Help is within reach in the form of learning support services, including tutoring in writing and math and other supplemental instruction. Visit the Learning Resource Center in LA 334, or learn more at <http://www.uno.edu/lrc/>.

### Affirmative Action and Equal Opportunity

UNO is an equal opportunity employer. The Human Resource Management department has more information on UNO's compliance with federal and state regulations regarding EEOC in its Policies and Resources website: <http://www.uno.edu/human-resource-management/policies.aspx>